The Builder.

Vol. XIII.—No. 662.

BEAUTIFUL Paris! Wonderful Paris! Clever people! These have recently been the exclamations of thousands of our countrymen and countrywomen in that sparkling and exciting city,—exclamations fully justified. Such a sight as the Place de la Concorde, with its extraordinary vistas, its fountains, obelisk, and statuary, presents in the sunlight; and the Boulevards offer at night, with their thousand lights, bright lofty houses, and myriad people, talking, laughing, sipping,—everything but working,—is scarcely to be seen elsewhere. Great and costly works are going on, in the Louvre, the new Rue de Rivoli, the cathedral of Notre Dame, the church of St. Clotilde, and other structures and places. French manufactures which involve art command the markets of the world. The Paris *cafés* exhibit decorations of the most elegant and costly description: artistical sculpture is seen scattered on every side; and justly, we say again, may all exclaim, "Clever people! Wonderful Paris!"

So much, however, has been heard of this lately,—of the advanced state of the fine arts in France—of the glories of her capital—the rapidity with which municipal improvements are made, and the admirable effects which the French architects and artists contrive on all occasions to produce,—such stress has been laid on the superior powers of organization exercised by our neighbours, and the foresight which they exhibit, that we seem likely to forget that the bright picture has a dark side also, and, what would be worse, may assist in persuading our allies that they have nothing to improve, nothing to reform. There are many, many points on which our anomalous neighbours—so great and so little, so advanced and so backward,—may with great advantage take a lesson from what has been done in England. Shall we not go farther,—and say there are few things in which they could not do so. Incomplete and impure as is our water supply, compared with what it should be, that of Paris is not to be compared with it: open to objection as the state of our drainage may be, that of Paris is a hundred times worse. Many of the best-looking houses in Paris are, as relates to health, in a perfectly fearful and thoroughly abominable condition,—whited sepulchres literally and truly. At this moment the beautiful city contains a vast magazine of destructive materials, which may explode at any moment, carrying ruin and death into thousands of families. The danger to their brave troops from suspected mines in the Malakoff, when they first entered it, was not more imminent than it is to the home-staying citizens themselves from the unsuspected "sap" in Paris. You need not go into the slums to prove it. Don't go there, if you wish to keep a good opinion of Paris. We will travel no farther than to one of the chief establishments in the Rue de Richelieu,—say, the Hôtel des Princes,—where people are charged from five to ten francs a night for a middling bed up in the seventh heaven, and have the honour of paying two francs for a small sole for breakfast, and three francs for four penn'orth of boiled rice, called a *boudin de riz*. We mean no offence, but thus mark the great respectability of the house. Well, we have before us the personal evidence of four separate individuals, who, previously in good health, were here attacked on the same day and again afterwards with violent diarrhœa, sickness, and acute pains, distinctly attributable to the want of proper sanitary arrangements in the building. We looked into the circumstances ourselves, and can therefore speak positively. We have entered houses of a lower grade, so full of injurious emanations that healthful life could not possibly be maintained therein, and we have found, in such few inquiries as we were able to make, the people dying off, notwithstanding their out-of-door life and other advantageous circumstances, at such ages as would prove the truth of the assumption. Many of the houses contain a fever-still always at work. Paris is at this moment pervaded by foul smells and poisonous gases, rivalling in variety those sung by Coleridge in Cologne; and the advantages which Nature has given to this beautiful city are thus more than counterbalanced by the blindness and carelessness of man. Truly, 'midst all its beauty and its brightness there is no lack of materials for a book of "Paris Shadows," thick and threatening, and we would commend to those who are in power the special duty of forthwith stirring to lessen them. Beauty in front will not compensate for filth, disease, and death behind.

Even in the matters of Beauty, Taste, and Fitness,—administrative power and organisation, we must be permitted to say that the unqualified admiration that we are just now hearing of everything French will do much more harm than good. A catalogue of failures in these respects discoverable in the Universal Exhibition alone would not be a short one. The main building itself is ill adapted for the purpose: you have four stone walls, of no use but to keep out light, with a structure of iron and glass, *wholly independent of the walls*, put down within them. The unnecessary quantity of iron used would lead to the belief that the contractors were to be paid by the cwt. The galleries are so wide (85 feet), and so heavily constructed, that all beneath them is in darkness; and there, in consequence, you may wander in solitude through long alleys,—with ranges of cases on either side,—gloomy, depressing, and deserted. The staircases, as we have before noticed, are the best features of the building, and are unquestionably effective and elegant. On entering the great nave, full, by the way, of charming things, but as little to be compared, for general effect, to the Exhibition of '51 as Soho Bazaar is to this of '55, the small size of the building surprises one. You find that from "out to out" it is not very far from half the length of the building in Hyde-park (834 feet), but it does not look one-fourth the length. Why is this? A little examination will give a reason. The arched roof has gable ends at the terminations, and these ends occur not at the extremities of the building,—beyond the galleries,—but in a line with the *face* of the latter; and then, to make the matter worse, these ends are glazed with stained glass, representing,—one, France convoking all nations to the Congress (inscribed *La France convie les Nations à l'Exposition Universelle*); the other, Equity distributing recompenses to the deserving (*L'Equité préside à l'accroissement des échanges*), wherein the size of the figures is so great that they come close to the eye, serve as a deceiving scale, and interfere with the effect of the whole. Another error in judgment is shown in the great size of the stalls or cases, which are built up in the nave twice as high as they should be, or need to be. Look, again, at the shafting for the machinery in motion, in the Annex—as it is termed—ponderous and absurd; and with all its heaviness not without a great weakness in construction. The little piece of shafting put up by Mr. Fairbairn contrasts amusingly with it.

Much of the French furniture is very indifferent in taste (all praise, nevertheless, to many beautiful exceptions), carpets covered with sprawling flowers of Brobdignagian aspect, and paperhangings full of very violent contrasts. As to arrangement of specimens, notwithstanding the opinion expressed in a recent communication in our pages, there is little, if any: it is notoriously a failure:—those who seek examples of a specialty must search all over the three buildings for them. The duties of the jurors must have been very heavy in consequence.

In the Palace of the Fine Arts, the cold leadeny tones of the majority of the French painters (more eminent in design and drawing) give increased value to the colouring of the English School, which there shows itself with a power which the most prejudiced Briton could scarcely have hoped for. A walk through the English department is like going through a flower garden; and notwithstanding the pooh-poohs and qualifications of the local critics, it is quite evident that they feel it so too. Passing up to the gallery,—the French architects have omitted to illustrate the present advanced state of practical architecture in France, having confined themselves, as we have already pointed out (p. 302), to academic studies of existing monuments and designs for restorations. Many of these are set forth in drawings of exquisite beauty, which should obtain the attention of our architectural students.

If, to continue our reactionary observations, we seek out of doors for specimens of bad taste in restoration, we may look at the work done at St. Denis, a few years ago, including most of the modern glass; and as to new buildings, the details of the Church of St. Clotilde are very indifferent, and the ornament on the front of the "Bibliothèque Impériale du Louvre," opposite the Palais Royale, has a barbaric richness, which Visconti could scarcely have designed. Even in the new street, the elongated Rue de Rivoli, wherein this front plays a part, we may ask why there should be no departure from the elevation which formerly prevailed there,—the only feature in which is the balcony on modillions to the windows of the first floor? A mile of this will be more than enough, nevertheless it will be a noble street.

And many, many other noble things are there in Paris,—Paris ancient, and Paris modern,—to some of which we shall hereafter refer. We are not afraid that our observations in the present article will be misunderstood. We have already shown in the short series of papers on the Universal Exhibition of 1855* (papers to which, after a careful re-consideration of the collection, we with confidence refer our readers, as conveying a good general notion of its contents), how highly we estimate its importance and beauty, and we have during many years borne willing testimony to the skill of our allies, the advantages they derive from early cultivation in art, and the good results which the capital exhibits. But we do, nevertheless, feel it right to protest against the indiscriminate praise of everything French now heard, as compared with what is done in England, tending as it does to increase vanity, already sufficiently great, and to justify the opinion, founded in ignorance, which has been expressed by one of their popular writers, that in matters of art we are still but "varnished barbarians."

Paris is a wonderful city, and the inhabitants are a clever people: but they have still a vast deal to learn and to do.

Bells in New Churches.—A correspondent, who urges that our new churches should be furnished with peals of bells, to diffuse cheerfulness, gives a *list of prices* for *eight*, whose largest (or tenor) varies in weight (the hanging of them included) as cast at a well-known bell-foundry:—

Eight bells, tenor weighing		14 cwt.	£600
Eight ditto	ditto	18 cwt.	715
Eight ditto	ditto	20 cwt.	770
Eight ditto	ditto	22 cwt.	845

* See pp. 253, 265, and 301, *ante*.

THE CHEMISTRY OF BUILDING MATERIALS.*

The word "*calcareous*" strictly signifies "of or belonging to lime," and implies the presence and, in general, the predominance of that substance in the body to the title of which it is prefixed; but it has long been extended, both by theoretical and practical men, so as to include bodies containing magnesia as well as lime, and chemists embrace under the term "calcareous earths" both of these substances.

The English word "limestone" has a similar meaning. It signifies a stone which certainly contains lime, but may also contain magnesia; and as these earths occur in limestones united with carbonic acid, so as to form carbonate of lime and carbonate of magnesia, a calcareous building stone or limestone may be defined to be a stone consisting in greater part of carbonate of lime, or of carbonate of lime and carbonate of magnesia. This definition has reference solely to the chemical composition of limestones, but their physical structure is of equal importance in estimating their architectural value.

Considered chemically, the calcareous building stones may be divided into three groups:—

1. *Simple Limestones* or *Limestones Proper*, consisting of carbonate of lime.
2. *Magnesian Limestones*, consisting of carbonate of lime and carbonate of magnesia.
3. *Composite Limestones*, containing, in addition to one or both of the calcareous carbonates, silica (sand), silicate of alumina (clay), oxide of iron, bitumen, phosphate of lime (bone-earth), and the like, and which are named according to the predominating additional ingredients, silicious, argillaceous, clayey, bituminous, or phosphatic limestones.

In the preceding enumeration, those recent aqueous calcareous deposits, called by geologists *calc-tuffs*, analogous to *stalactites* and *stalagmites*, are omitted, because, though used in other countries as building materials, they are unknown as such in Great Britain. Many of the Roman edifices, alike ancient and modern, are constructed of such a stone, called *travertino* or travertine.

Simple limestones, so far as their application in building is concerned, may be divided into three classes:—

1. Crystalline limestones or marbles.
2. Compact or massive limestones.
3. Oolitic limestones or roe-stones.

1. *Crystalline Limestones.*—Simple limestone is most perfectly represented by white statuary marble, such as that of Paros or Carrara. It may be regarded as chemically pure carbonate of lime, consisting of fifty-six per cent. of lime and forty-four per cent. of carbonic acid. Its structure is uniform and crystalline; the component crystals being very small, but closely adherent, so that it resembles loaf sugar, except that it is much less porous. The crystals are in thin scales, transparent, and plates of marble of considerable thickness allow a certain amount of light to traverse them, and are indebted to its passage for a portion of the peculiar lustre, so devoid of opaque chalkiness, which belongs to pure white marble. Its uniformity of structure allows it to be quarried in large blocks, and its comparative softness and crystalline texture to be easily chiselled, nor does any stone take a more uniform and beautiful polish.

The coloured marbles (properly so called) are all less pure than the white, the colouring matter being always some foreign body; but even where the tint is considerable, the amount of colouring matter is frequently very small, and, except for the purposes of the sculptor, their good qualities are as marked as those of the white marble. From this enumeration are excluded all the non-calcareous stones which, in the language of artists, find a place among marbles, and all the calcareous aggregates of fossil shells and corals, which will be considered under the head of composite limestones.

2. *Compact or Massive Limestones.*—Under simple limestones, we must include substances less pure than statuary marble; nor, in truth, is it possible to draw a line of sharp demarcation between them and the magnesian or the composite limestones. We must certainly refuse the title of limestone proper to any stone containing less than half its weight of lime, or less than 90 per cent. of carbonate of lime; but within these limits it may be justly enough applied, especially if no *single* ingredient makes up the percentage. Where small quantities of different bodies, such as water, bitumen, iron, alumina, and magnesia together, constitute 5 per cent. of a mass otherwise consisting of carbonate of lime, its suitability for building purposes is so substantially identical with that of the pure carbonate, that it may be included in the same category.

Marble, also, is rather an artist's than a chemist's or geologist's word, and may be applied to any limestone which, from its colour and susceptibility of polish, is thought worthy to become the vehicle of the sculptor's art; so that marbles and limestones shade away into each other, and do not admit of being placed apart in separate groups. What an Italian, for example, might refuse to call other than a limestone, an Englishman might honour with the name of native marble.

There is this distinction, however, between the marbles in their best examples and the limestones, simply so called, in theirs; that the marbles are crystalline, and therefore granular in structure, are easily wrought, and take a high polish; whilst the limestones are non-crystalline or imperfectly crystalline, are not granular but compact in structure, are harder and less easily wrought, and do not take a high polish; but the hardest limestone is much softer than any building sandstone, and is more enduring as a building material for outer walls in a climate like ours than a marble would be.

No stone is superior to limestone for building with, where the conditions of climate are suitable. In Great Britain, however, the fine crystalline limestones or marbles suffer rapidly, if freely exposed. They are soluble to a minute yet appreciable extent in pure water, which their porosity allows readily to enter. They are still more soluble in water containing carbonic acid, such as rain water or melted snow; and in water containing the products of combustion, viz.—carbonic acid, sulphurous, and sulphuric acid, which are added to rain when it falls within the precincts of large cities, and especially when it runs over the roofs or walls of houses. They are liable to be splintered in cold weather by the freezing of the water retained by their pores, and are readily stained by the substances which enter these, and by the growth of the green *confervæ* which cover readily wet stones of all kinds. For sculpture, accordingly, to be exposed in all weathers, whether statuary or fine carving, they are unsuitable in climates like our own; but for ordinary building purposes, the marbles, especially the darker ones, would be suitable enough; and the non-crystalline or compact simple limestones are extensively employed all over the world as building stones.

3. *Oolite or Roe-stone Limestones.*—One of the most extensively employed limestones in England, throughout the eastern and midland counties, is named oolite, literally *egg-stone*, from its peculiar structure. It consists of a multitude of small spherical grains, resembling in colour and appearance mustard-seed, and adhering together like the ova or eggs which constitute the roe of a fish; hence its English name of *roe-stone*. The component particles vary in size from that of pin-heads to that of small peas; but when they exceed the latter size, the resulting mass is termed *Pisolite* or *pea-stone*. The oolitic globules appear to have been formed by depositation of carbonate of lime from solution in water charged with carbonic acid. Agitation of the water in which they have been deposited prevented for a time the carbonate from falling quietly as a sediment, so that it gathered round separate nuclei, each of which became converted into a calcareous globule. These globules afterwards settled down to the bottom, and gathered together into a mass, ultimately consolidating into an oolite or roe-stone. The nucleus of each globule appears frequently to have been a crystalline grain of carbonate of lime, round which similar grains clustered, as we see a minute snow-flake attract others to itself, and become a large snow-feather—a spherical configuration not being attainable in the circumstances. Where the globules have been formed round particles of the same nature as themselves, they are solid, often radiated in structure, or simply compact; frequently they consist of consecutive layers covering each other, like the different coats of an onion. A stone consisting of such solid globules, adhering together without interposed cement, or only with a calcareous one of the same composition as themselves, affords the best building oolite, and may (as implied already) be as pure as the simple crystalline limestone. Such, for example, is the character of the oolite from Kelton in Rutlandshire, with which many of the public edifices in Cambridge, the modern portions of Peterborough and Ely Cathedrals, and some of the churches in London have been built.

In other cases, the component ovules of the oolite are hollow within, as if they had formed round a perishable nucleus, such as a particle of vegetable matter or a grain of salt, which has afterwards been decomposed and washed or dissolved away. Such hollow globules occur in the well-known Bath limestone, employed largely in that city and elsewhere—Buckingham Palace, London, among other edifices, being built of it. The same peculiarity of hollow ovules occurs to some extent in the most famous English oolite, the Portland stone, with which St. Paul's Cathedral and a host of other churches and edifices in the metropolis have been erected. When such ovules, by superficial disintegration, have their cavities laid open, these must afford a lodgment to water, dust, and smoke, and lead to the disfigurement and decay of the stone. Many oolites, accordingly, are found to give way very rapidly when exposed to atmospheric action, partly from this peculiarity, but also from the interposed cementing matter wearing at a different rate from the ovules themselves. Many limestones, in their general structure oolitic, contain also fragments of shells and non-calcareous matter. They thus approximate to the composite limestones, under which they will be referred to.

2. *Magnesian Limestones.*—The term magnesian limestone is applied to a compound of lime, magnesia, and carbonic acid, which occurs both in regular crystals, like those of Iceland Spar, and in rocky masses, forming whole mountains. The lime and magnesia are united with the carbonic acid as carbonate of lime and carbonate of magnesia, and as these can crystallize together in any relative proportion, different magnesian limestones contain very unlike quantities of their common ingredients. That variety, however, is considered the most typical and characteristic which contains the two carbonates united in equivalent proportions, *i.e.* fifty parts of carbonate of lime to forty-two of carbonate of magnesia, and forty-four of carbonic acid.

More than half this variety, which nearly resembles in composition the Bolsover limestone used in the construction of the Houses of Parliament, is thus carbonate of lime; and in all the varieties, it preponderates over the carbonate of magnesia. The majority of magnesian limestones contain, in addition, small quantities of iron, silica, alumina, and water, like the simple limestones.

The fact of a stone of the class we are considering having been preferred for the Houses of Parliament, shows the high esteem in which it is held in England. The Bolsover magnesian limestone contains about 10 per cent. of foreign matter, of which about one half is silica, and the other half water. Its specific gravity in mass is 2,316, and in powder 2,833, both being higher than those of Craigleith stone, which stands at the head of our sandstones. Its cohesive power is 117; that of Craigleith stone 111. In structure it is semi-crystalline, and it is little altered by the atmosphere.

Throughout England, and especially in Yorkshire, many buildings exist constructed of magnesian limestone from different quarries. Some of those edifices date from the twelfth, thirteenth, and fourteenth centuries, such as Beverley Minster, Knaresborough Castle, Roche Abbey, Spofforth Castle, and are still, in great part, in good condition, and in some cases in perfect preservation. It is not surprising, therefore, that the reporters on the stones most

* See pp. 435, 447, 463, and 472, *ante*.

suitable for the Houses of Parliament should have given the preference to magnesian limestone, not only for them, but for all edifices. They are as lasting as most sandstones, have as pleasing a colour, and are more easily and economically wrought.

It is not denied, however, by the reporters, that some magnesian limestones, not apparently different from those which are so lasting, decay with great rapidity, as a large portion of York Minster and many of the churches of York illustrate.*

REVIEW OF ARCHITECTURAL DOINGS.

THE ARCHITECTURAL ASSOCIATION'S CONVERSAZIONE.

The Architectural Association commenced the session on Friday evening, the 5th; Mr. Alfred Bailey in the chair. It was stated in the report read by the secretary, that the subject of the formation of a Lending Architectural Library had been under consideration, and the committee had resolved to carry it out—the subscribers not to be formed exclusively of members of the association. In consequence of the interest taken in the paper on architectural diplomas, it had been determined to memorialize the Royal Institute of British Architects on the subject.

On the motion of Mr. Rickman, seconded by Mr. Hovenden, the report was adopted.

The Chairman said, meetings like that, when they were accustomed to deviate somewhat from their ordinary routine of proceedings, were extremely useful to the association, and maintained their connection with the profession and the public. They had also been thereby enabled to profit by the kindly advice and encouragement, and often by the not less kindly censure, which had been expressed by that portion of the profession which, though not enrolled in their numbers, had always taken an interest in their proceedings. With reference to the affairs of the society, he certainly was afraid that, from want of energy, they had gone in a backward direction, and he called upon the profession generally to help them to scotch the wheel. He thought that the society had suffered rather from over-management: while thinking of their society, they had forgotten their art. In an architectural point of view, the present year had been one of the least eventful known for some time. They had no new buildings to notice, few antiquarian discoveries to rejoice in, and the architectural press had become almost silent. The present stagnation might at least be productive of some good: they might hope that by this time their old friend the National Gallery, yielding to the entreaties of his friends, had abandoned his intention of residing in the fashionable suburbs. Rumours were rife of new buildings round the Palace of Westminster, and large additions to Whitehall, but as yet they only existed in the blue books. The agitated question of the vacant ground near St. Paul's had almost dropped, and they were looking in vain for a new public building to discuss. There was, however, one question which ought soon to occupy their attention: what is to be done with Smithfield? He was afraid, if they were not on the alert, it would be covered with small houses. Now, he knew nothing which would so much improve that part of London, or would more benefit the inhabitants generally, as to take this opportunity of making a public place. With the exception of Trafalgar-square and the Poultry, we have not one open space which can be rightly called public. What a lamentable compound of ugliness, exclusiveness, and melancholy dulness, do most of our London squares present! There were few small possessions more coveted by cockneys than the right of way to an iron gate,—the right of trap-ball to a piece of green. In this age of new inventions, he never remembered seeing a new design for laying out a London square. They are all concocted on the old recipe,—the same iron railing, the same privet hedge, the same wallflowers, the same central rustic temple, the same level walks and ground, and the same gardener of sixty-five years of age. When he said the same iron-railing, he was not quite correct; there were in London three different varieties of this interesting feature,—there was the Bedford railing, the Grosvenor railing, and the Portland railing,—all other patterns were only impertinent imitations of those three great species. Some of the squares had, it was true, certain local peculiarities,—some had pumps, some had not; Berkeley-square had a revolving-pump, and the pump in Hanover-square must be seen to be appreciated. A few squares only were enlivened with lilac trees, and the blossoming of the almond tree in Grosvenor-square was the annual event of that locality. It only remained to notice that some of our squares were adorned with statues of great British worthies, such as John, Duke of Bedford, or Charles II. or George IV. As a kind of relief to this exclusive dulness, would it not be possible to obtain the space now occupied by Smithfield for a real public square, without railing or privet hedge, adorned by suitable ornaments, and a few statues of really great men, which might conduce to the health, enjoyment, and ornament of a part of the metropolis which much needed all three? A subject to which the attention of architects had lately been directed, and was likely to be still more so, was the arrangement of cemeteries. Competitions offering amounts of a very inadequate kind, had lately been advertised. Still there was something to be said on both sides: the projectors fixed themselves with a limited sum of money—a misfortune which was this year remarkably common: joined to this deficiency of funds, they had also a legal obligation to construct a cemetery as soon as possible, and if they were obliged to make pence do the duty of shillings, it was not their fault. Be that as it may, the architect's part in those cemeteries had certainly not been done as it might. In all the designs for cemetery chapels that he had lately seen, they had the painful fault of being large churches in miniature, and there was no evidence of any attempt at those new ideas which an almost new subject might be expected to bring forth. There was one class of private buildings which seemed to bid fair to alter the character of all the large towns of England. He alluded to the large warehouses of which we have lately seen such noble specimens, especially in Manchester. These afforded a very fine field for new thought on the part of the architect. He trusted he might not be considered over fastidious, when he said that the very handsome buildings of this class recently erected, struck him as having one defect—they were too like palaces. He did not object to the ornament lavished on them, but he did object to the mode of fenestration—a number of windows spaced out after the manner of an Italian palace, which always give the idea of a number of apartments, and not of vast storehouses on each floor. Cannon-street resembled too much a large street of mansions and club-houses. Now, it had generally been considered right in architecture, that external design should give some evidence of internal distribution. In this respect our warehouses failed. He would suggest that an arrangement either of a few large windows, or a large number of small ones close together, would be more appropriate than the present practice. The latter was the arrangement common in the old Italian town-halls in every age, and admirably it gave the notion of internal space. Warehouses seemed also to afford great opportunity for the development of brick design, but the experiment had not yet been tried. Of new discoveries in the antiquarian part of their art, this year had been barren. He could only hope that in the course of this session, their member, Mr. Boutcher, would have something to tell them of his wanderings in Asia Minor, and of his recent experience at Nimrod and Wurka. He could not help here alluding to the new field which seemed recently to have been opened to the student in ancient art—when we shall have become masters of the Crimea (he did not pretend to fix the date). He sincerely trusted that some traveller in Greece or Turkey would extend his wanderings to the seat of war, and give us something more than the present vague accounts that we hear of the old buried Pompeii on the Heracleotic Chersonese; of the sepulchres of an ancient race which lie buried under our own dead in the caves of Inkerman; and last, though not least, of the old palace of the Tartar Khans at Batchki-Serai. He could not leave the subject of ancient art without expressing a hope that the directors of the Crystal Palace might some day be induced to add two more fine-art courts to their collection at Sydenham. Among their illustrations of ancient art they have given us an Assyrian Court, an Egyptian Court, and a Pompeian Court; but from them nothing could be gleaned of the art of that wonderful people, the ancient inhabitants of the Italian peninsula. A complete restoration of an Etruscan tomb, paintings and all, would be a valuable contribution to art history. Having given us an Etruscan Court, he could not but wish that, with Mr. Fergusson's assistance, they might one day see another court containing numerous illustrations of the architecture of India. Two books that had been recently published could not be passed over in silence. They had Mr. Street's "Notes on the Gothic Architecture of Northern Italy," garnished with his own peculiar views as to the universal applicability of Gothic art, extremely ably written. Now that they were becoming so alive to the beauties of Italian Gothic art, a good and cheap book on the Gothic of the south-eastern part of Italy would be very valuable. During the recent dearth of art-literature, no book could have been more welcome than Mr. Pettit's "Notes in France." It had given them information about a neighbourhood which students had strangely neglected, and had arranged and classified the early French Mediæval styles in an entirely new manner; and the chapters which treated of the Augevine, the Perigueux, and the Auvergnat system of vaulting were of the greatest value. He had read nothing lately more abounding in sterling originality and unostentatious common sense than the last chapter, the views in which Mr. Pettit had still further elaborated in his recent paper at the Institute of British Architects. Mr. Ruskin had not favoured them lately with anything architectural. The piazza of St. Mark had been abandoned for Trafalgar-square; and they had been rather startled to hear that Mr. Maclise not only paints badly, but that he does it on purpose. He believed that he was justified in saying that they would shortly see a building in the north of England erected from Mr. Ruskin's designs, with the constructive assistance of an architect. He (the chairman), for one, was delighted to hear it. They were rather tired of his singular recipes, and were anxious to see the pudding itself. Let them wish it every success, and may it be as rich and juicy as the mind that made it. But if it should turn out a failure, if it should prove flat, crude, and indigestible, then by every architectural stomach in the kingdom they would not spare him. The excuse about the Edinburgh windows, "that he did not care to perpetuate them," would not avail him now. They were much in want of new books, treatises, or other information on new modes of construction. They had recently adopted so many new applications of material, that the old and valuable treatises on the strength of materials were not enough. The results of a series of well-conducted experiments on bent timber and laminated ribs would be of incalculable value, and they were strangely deficient, even now, in proper information with regard to boiler plate girders. If it were not presumptuous, he would there make a humble suggestion to a senior society. It was no secret that the Royal Institute of British Architects intended shortly to remove to other premises. It would be a great boon to the profession generally, if these premises should contain a yard or other open space fitted up with an hydraulic press and other apparatus, where architects would find facilities for making experiments on building materials. The only place where an architect could prosecute such researches was a builder's yard, and the builder was just the man to whom the architect did not wish to be under obligation. As the report had told them, they were about to memorialize their seniors to set on foot a public architectural examination, and an honorary diploma. It might perhaps be thought somewhat presumptuous in a junior society to take the first step in such a matter; but that was surely a mistaken view of the case. The institution of a public architectural examination

* To be continued.

must be the work of the old and experienced, but it was no less the duty of the student strongly to insist on its necessity. He knew well that in these days of free trade it would be idle to insist upon that examination being a compulsory one, nor was that necessary. To say that no man could give an opinion as to the safety of a parapet, or the construction of a chimney-pot, without having passed an examination, would be manifestly absurd, and he had often heard this kind of argument used against examinations altogether. Let the examination only be a good one, and a stiff one,—let the "pluckings" be tolerably numerous, and he was sure that there would be no necessity for a penal law to create candidates. Among the gentlemen he was addressing, there were many of great practical experience; he appealed to them if they recollected many things in their own career more harassing or more difficult, than the process of getting their first job? If they could only begin practice with their second job instead of their first, the necessity for a public examination would be much lessened. A wants to build a house, and likes to encourage rising talent; he hears that B and C are clever young men; he calls on both. B is asked what he has executed in his own name: "Nothing," says poor B. "And you, Mr. C.?" "I, sir, have covered the suburban estate of the Toe and Heel Land Society, with third-rate houses." B retires within himself. But if B could only have said, "I have passed my examination with honours," and C, in spite of his third-rate houses, was egregiously plucked, B would be deservedly employed; and C would grind again, go up again, and perhaps again, would eventually pass, and be a good architect instead of a bad one. Another thing which this examination would effect, would be to protect the architect from the quack. He was not going to indulge in any solemn cant about the dignity of the profession; a man who was always talking of the dignity of his profession, lost dignity himself at every boast. Provided a design be good, he would honour the name who made it, whether he be architect, builder, engineer, or what. If the design were bad, he would abuse the man that made it; not because he was, perhaps, a builder, but because he had made a bad design. The only qualities which the public cared about, or ought to care about, in a professional man, were capacity, industry, and integrity; and the public would go to find these where they could get them best and cheapest, for brains are always a marketable commodity, and every architect has a right to sell them at whatever price he pleases. When therefore, he spoke of quacks, he did not allude to the quacks from without. They could build them down, but nothing less than a public examination would purify the profession of the quacks within their pale. Those were a numerous and a daily increasing class. They were not to be found in the first ranks of the profession, and not often in the second; but in the third rank their name was legion. It was quite time that these men should be exposed, because many of the respectable portion of the profession were quite ignorant of their existence. They were in fact a modern invention, and he must in justice add, they were not always young men. Those were the men that make a trade by practising on the good-nature, the inexperience, and often the dishonesty of competition committees: they compete under the cloak of a secret motto, which is a mere sham, and which they know to be so; and then, if their roguery should prove unsuccessful, they are the first to denounce the committee whom they helped to corrupt, and the system of which they were the authors. These men were generally wholesale takers of pupils, with premiums varying in proportion to the means of gullibility of their parents and guardians. These pupils, not cared for, but left to petrify over plans of estates, the five orders, and the squaring of dimensions, in due time become quacks themselves, because they could not help it. How did these architects make their designs? He (the chairman) knew more than one of that class who could not draw a line with the ruling-pen. Their offices were nothing more than retail architectural shops, where second-hand articles were sold at more than their first-hand value. But where were these designs made? There were various small houses in the neighbourhood of Camden-town and Islington tenanted by middle-aged men with large families, and apartments to let. In these houses designs in every style are got upon reasonable terms, and very often an allowance was made if the competition was not successful. On entering one of these small houses might be seen, in a low, chill, comfortless room, a man with a pale face and a sunken eye, but with the education and manners of a gentleman, sitting over a drawing-board—his post from early morning till often long past midnight. He was early used to work. In the days of his pupilage he did the same. He studied hard, his heart was lighter, his eye was brighter, and his cheek was fuller then. Many a joyful night did he once spend over that assemblage of columns in a dingy frame which hangs over his mantelpiece, and for which he did *not* get the gold medal in 1836. Just look at him now. The boy's enthusiasm for a glorious calling has all passed away, to give place to the set, stolid, indifference of a *blasé* being without any pursuit but his drudgery, which, from constant habit, has become for him a sort of mechanical dram-drinking. Weak and poor indeed are the designs he makes: how could it be otherwise? To him they would bring no fame. Where could excellence exist where ambition is not, and where the only object is to earn a miserable pittance for a struggling family? It was thus that a fine nature was spoiled, a thriving charlatan encouraged, and one more ugly building went to swell the number of those that have been manufactured in the same way. He (the chairman) believed it was the first time since the association had been established that it had been the painful privilege of their president to allude to the death of an old and valued member. Mr. Burt had been taken from them. His loss would be deeply felt by all; they would miss much his singularly profound, practical knowledge, his great facility for expressing his ideas, and above all, that candid and amiable bearing which endeared him to all who knew him. In conclusion, he could not help alluding to a circumstance much more pleasant than the last. He congratulated every student present that the chair of architecture at the Royal Academy was not, as had been feared, vacant. To criticise the lectures of Professor Cockerell would ill become one who had attentively listened to them for the last eleven years. On the substance of those lectures he therefore did not presume to offer an opinion, but on the manner in which they had been presented to them he conceived it to be neither presumptuous nor ungrateful if they took that opportunity of tendering to the professor their humble tribute of respect and gratitude. How many of them could remember that when the lecture was over, with what disinterested kindness their professor was ready to answer the question of the humblest student; and one thing more glorious than all was the sense of the fact, that the grey-headed man addressing them had not lost one tittle of the youthful enthusiasm of the discoverer of the Ægina Marbles, and that their accomplished professor was still, in the best sense of the word, as much a student as the youngest probationer on the back benches.

On the conclusion of the president's address, and at his invitation, Mr. Tite, M.P. who was present as a visitor, addressed the meeting. On the public topics touched upon he stated that he had no doubt whatever that the vacant space near St. Paul's was secured, and would not be built upon;—that he had also no doubt the Corporation would keep Smithfield an open space; but that its appropriate, or rather fitting arrangement, so as to present any agreeable, or architectural features, was an object of great difficulty. He invited the sketching class of the society to turn their attention to the subject, and to make suggestions with this view. Mr. Tite then proceeded at considerable length to discuss the question of scientific education in England. He considered the great defects were, first, the want of a good sound elementary education, and then proper examination afterwards by the Institute, or some competent body, so as to give the scientific teaching at lectures, or in the architect's office, a proper direction. He accepted, so far as he was individually concerned, the offer to submit to a voluntary examination suggested in the president's address; but he thought that, in all government or public appointments, such as corporations, &c. no scientific position ought to be given without the fullest examination, such as existed at the present moment in France, or by the "Bau-verein," in Prussia. He regretted to observe a disposition in England to employ uneducated men, on the pretence of their practical attainments, which he considered must more advantageously co-exist with education, and which might at all times be easily found in combination. Mr. Tite, in adverting to the sketches on the walls, regretted the universal desire to introduce and study mediæval architecture in preference to the Italian, and in abandonment of the styles so elegantly applied by Perrault, Vignola, and Sir Christopher Wren, which he considered more appropriate and more convenient for social purposes than the frequently forced applications of the types of the Middle Ages. Mr. Tite concluded his address by pointing out the advantages of association, for the purposes of study and mutual advancement, such as this society afforded, and by urging its members to continued and renewed exertions.

EGRESS FROM THEATRES AND OTHER PLACES OF AMUSEMENT.

EXETER-HALL.

Some remarks in the *Builder*, in reference to the inadequacy of means of egress from the theatres, have opened up a question in which the public generally are much interested. I do not know much of the particular arrangement of theatres in this respect, but the deplorable deficiency of *exits* at nearly all places of public resort is notorious. With no small experience of large assemblies, I fear that it will only be when some lamentable catastrophe has occurred that due attention will be given to the subject.

With the professional knowledge you can bring to bear, you will do good service by using your best exertions to mitigate the evil.

In the hope that you may be induced to do so, I have much pleasure in placing at your disposal information in reference to Exeter-Hall, which enjoys a most unenviable notoriety in this respect.

The large hall may be taken as capable of seating 3,000 persons. It has but three points of exit, their united width being about 18 feet. There are two tiers of offices under the large hall, so that at least fifty steps have to be descended before the street level is gained. It does not require much discrimination to perceive that a building used for large assemblies, at a considerable height from the ground, presents points of danger greatly in excess of one that is on the ground level. Two of the three staircases are very narrow, full of angles, and awkward turning points: in a time of excitement they would be dangerous. The third staircase, leading into the Strand, is wider, but it is nearly straight, with but one landing, and the danger resulting from a sudden rush down the fifty or sixty stairs composing it, may readily be noted by any one looking through the swinging doorway in the Strand.

In connection with the Sacred Harmonic Society, I have had twenty-one years' experience of the alarming deficiency of Exeter-Hall in this respect. Through this series of years I can testify to repeated complaints and warnings from all classes. The *absolute danger* has been frequently pointed out to the directors of the building, and, although opportunities have offered, and schemes readily practicable been proposed to them, yet they have been steadily ignored. That you may not think I am indulging in unmerited remark, I enclose you the report of the Sacred Harmonic Society for the past year: I refer you to page 30 therein.

Even this representation has passed unheeded, and thus matters are likely to remain, unless some authority interposes. It would be highly desirable that authority should reside somewhere to prohibit meetings in places of public resort unless previously certified to be safe and commodious. As the best means, therefore, which suggests itself to me to provide a remedy, I do intreat that you will follow up your

remarks. You may rely upon it that by so doing, you will do good public service.

It will be but little satisfaction to the relatives of those losing life by any such calamity as would probably ensue upon a sudden alarm taking place at one of the crowded meetings held in Exeter-Hall, to know that the four-and-twenty directors who watch over its interests were liable to answer a charge of manslaughter at the Old Bailey, as one of the results of their criminal negligence in this respect; and, therefore, in the hope that the old saying may be verified, that "prevention is better than cure," I do trust that you will draw attention to the subject.

R. B.

COLOGNE.

On the 3rd of October the King of Prussia laid the first stone of a proposed stone bridge between Cologne and Deutz, designed by Herr Lohse. When he struck the stone, with the hammer with which he laid the first stone of the new works at the cathedral in 1842, the king said:—"The mercy of God has permitted us to commence this work in peace. Let us pray Him to grant that it may be continued in peace. Let us entreat of Him that it may flourish under the golden horn of plenty, of peace; that it may remain for ever and ever untouched, and that, long before the last stone is laid, all Europe, in peace, may be once more reunited."

Afterwards the king witnessed the depositing of the last stone of the south portal of the Cathedral of Cologne, which has been built at his majesty's expense. Herr Zwirner, the architect who superintends the work of continuation, spoke a few words *apropos* of what had been done and of what remained to be done—intimating his belief that the cathedral (except the great towers) could be finished in seven or eight years; but that, if the funds were augmented, two or three years at the most would suffice.

His majesty then went to lay the first stone of a new museum in the Minoriten-platz, for which funds have been provided, as we mentioned some time ago, by Herr Richartz, a merchant.

One of the most interesting stands in the nave of the Palace of Industry, in Paris, comprises Herr Zwirner's drawing for the portal of the cathedral, a number of large photographs, showing the progress of the works at different periods, and some of the prepared stonework itself, including a mighty finial, exceedingly well cut.

CHURCH-BUILDING NEWS.

Skellingthorpe.—The opening of Skellingthorpe new church took place on Wednesday before last. The church, dedicated to St. Lawrence, having fallen into great dilapidation, a meeting of the parishioners was held in 1853, and a resolution passed to restore and enlarge it. Application was also made to the Spital Hospital, who hold the great tithes, to restore the chancel. A survey was made in each case, plans were prepared, and the work was entrusted to Mr. Pope, of London, architect. The plan, as prepared for the new church, made it consist of the same chancel rebuilt, the same sized nave rebuilt, the north aisle widened, and an entirely new aisle on the south side, with a porch. The work was put to competition in May, 1854, and Mr. William Huddlestone, of Lincoln, builder, was chosen by the committee as the builder. On exposure by the removal of the nave, defects were discovered which rendered it almost necessary to rebuild the tower. The old tower was removed, the nave and aisle lengthened, another bay and an enlarged tower and shingled spire erected. The style chosen is that of the original chancel, Early Pointed English, and the church is finished as follows;—The chancel same width and length as originally proposed; the nave and aisle about 48 feet, and tower 16 feet square and 63 feet high, surmounted by a timber spire covered with shingle. The paving of the floor is of Minton's encaustic tiles, the chancel having ornamental ones. The roofs are all open-timbered, and stained. The chancel fittings are of oak; those of the nave and aisle stained deal. The pulpit and font are of Caen stone. The glazing is of cathedral caste, with stained and painted margins, and centres to double lights. Three windows, one in the tower, one at the west of north, and one at the west of south, were presented by Mr. R. Carline, Mr. Huddlestone, the builder, and Mr. Pope, the architect. Mr. Carline's is a figure of St. Lawrence, filling the window. Mr. Huddlestone's presents two groups,—Christ raising Lazarus, and Christ restoring the widow's child. Mr. Pope's has also two groups,—John baptizing Christ, and Christ blessing little children. Polychromatic decoration has been slightly used, and is progressing, Mr. Geo. Wallhead, of Lincoln, being the artist employed.

Horsendon.—The church here was reopened on Tuesday before last, by the Bishop of Oxford. The cost of the restoration was defrayed by the rector, the Rev. W. E. Partridge.

Newport (Isle of Wight).—The foundation-stone of the new tower of the church here was laid on the 3rd inst. by the mayor.

Weston-super-Mare.—On Wednesday week Lord Auckland, Bishop of Bath and Wells, consecrated the new edifice called Christ Church, situate on Montpelier, in this parish. The church is in the Gothic style, from designs by Messrs. Manners and Gill, of Bath, and is capable of accommodating 525 persons, including 250 free sittings. Mr. E. Gregory was the builder.

Wednesfield.—The new cemetery here was consecrated on Tuesday week, by the bishop of the diocese. The cemetery is situate about half a mile from the church, and is about two acres in extent, one of which was given by Mr. Pigeon, the other being purchased with subscription. It is enclosed, and is being laid out under the direction of Mr. E. Banks, of Wolverhampton, architect.

Chesterfield.—Scropton Church, built in 1111, has been taken down, and the first stone of a new edifice was laid on 27th ult. by Mr. J. Broadhurst, who gave all the workmen a dinner of old English cheer on the occasion.

Liverpool.—It is proposed, by way of memorial of the late Earl of Sefton, to place a memorial window in the west end of the parish church now erecting at West Derby. The foundation-stone of this church was laid by the late Earl of Sefton, in April, 1853. A subscription for the purpose in view has been opened in Liverpool.

Haslingden.—There are now in this town two new chapels being erected, the Independent, nearly completed, in Dearden-gate, and the Wesleyan, in Manchester-road. Extensive alterations are also being made in the roof, &c. of the parish church. The Roman Catholics of Haslingden have staked out ground for a proposed new chapel situate between the Ebenezer Baptist chapel and West View House.

Salford.—The recently decorated chancel of St. John's Roman Catholic Church, or Cathedral, Salford, was opened on Thursday in week before last, by Cardinal Wiseman. The church is cruciform, the upper arm of the cross being devoted to the choir and chancel, with Lady chapel, chantries, and side aisles. The whole of this part, including four entire bays, next what is called the east end of the church, has been walled up from the nave (at the point where the rood screen should divide nave from choir), for the last two years, with the object of completing the choir, and indeed all the internal work of that end of the church. It is now all but finished. The church stands nearly due north and south; but the old nomenclature is retained, for the end or choir window (nearly north) is called the great east window; what are really the east and west side aisles of the chancel are called the north and south aisles, and so on. Retaining the names given them, we may briefly mention the principal works of this part of the church, which may be generally characterised as in the Decorated style. The choir, from the place of the rood screen to the high altar, filling three bays, is enclosed by side screens, from the north and south aisles, with two entrances thence. At the lower end it will, for the present, be separated from the nave by the carved oak seats of the choir. At the upper end is the high altar, and its central canopied screen with lower screens flanking it. The other side of this screen, and reredos, is in the Lady chapel, which has its own altar and reredos, with piscina, &c. beneath the great east window. The Lady chapel has a private chantry on each side, the Lee chantry, on the north, being founded by Mr. D. Lee, and the Leeming chantry, on the south, by the family of the late Mr. John Leeming. Each of these chantries has its altar and reredos, its windows of stained glass, and its canopied family tomb. All the five principal windows at this end of the church (as well as the smaller clerestory windows) are of stained glass. The great east window, the gift of Bishop Turner, is the work of Mr. Wailes. The four chantry windows, as well as the brasses of the tombs, have been executed by Mr. Hardman, of Birmingham; and the groined roof has also been painted by him, azure, with gilded stars. The whole of the stone work is of fine Caen stone, with the exception of one altar frontal of Derbyshire alabaster, and the columns of two small arcades, which are specimens of the Devonshire porphyry. All the stone erections, sculptures, and carving, as well as those in alabaster, the carving of the oak seats for the choir, and the groined roof, have been executed by Messrs. Lane and Lewis, of Birmingham: the work has been done by about a dozen trained workmen of theirs, under the superintendence of Mr. Lane. The architects are Messrs. Weightman, Hadfield, and Goldie, of Sheffield. With the exception of the east window (the gift of the Right Rev. Dr. Turner), the whole of the works—choir, Lady chapel, chantries, and the side aisles, with the screens, altars, reredoses, tombs, windows, and roof—have been executed at the cost of two families, the founders of the chantries; and we are told that these works will not cost the Lees and the Leemings a less sum than about 5,000*l.*

Monkwearmouth.—Amongst the numerous cemeteries about to be formed in this neighbourhood under the new Act, that of Monkwearmouth appears to have made the greatest progress. The Episcopal chapel will soon be ready, and the Dissenters' chapel, lodge, and gateway, are in progress. The whole of the grounds are enclosed by a wall. The chapels, which are of stone, are detached, cruciform in plan, the nave forming the chapels, and the transepts forming, on the one side a reception-house for depositing the coffins, and on the other a vestry and porch. The chapels are both alike, in the decorated style of Gothic architecture, with bell turrets at the west gables, and accommodate 100 persons each. The lodge has a waiting-room and open verandah for visitors. Mr. Thomas Oliver, jun. of Sunderland, is the architect.

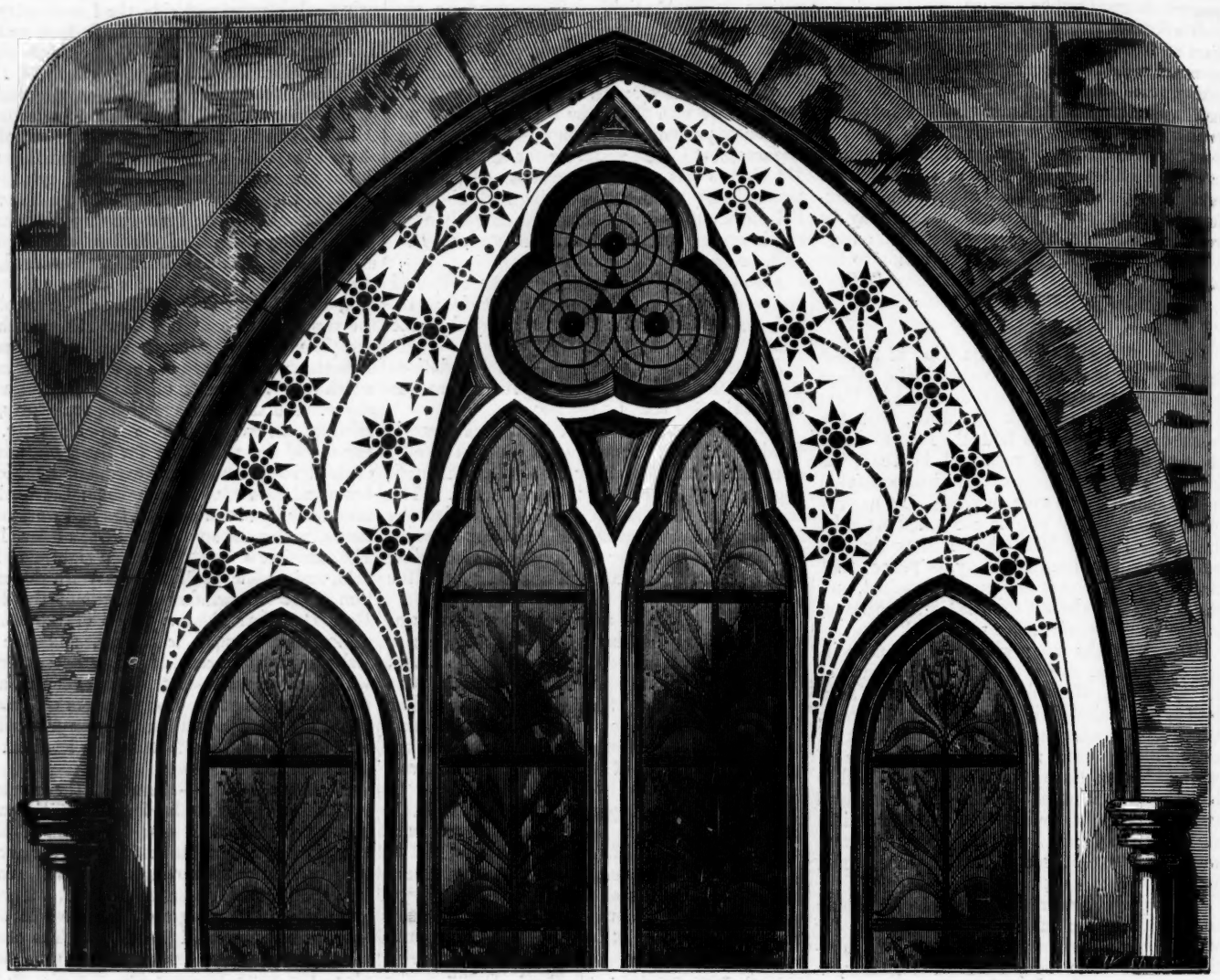
Elgin.—The walls of the towers of the cathedral ruins at Elgin, according to the local *Courant*, are now in course of repair. For some years back the stones were getting very loose, both lime and stone decaying. The Woods and Forests, therefore, employed Mr. Innes, of Bishopmell, builder, to cement the walls and replace decayed stones, and the greater part of this repair is now completed. A new iron gate, and new house for the keeper, are also contemplated. What does "cement the walls" mean? Surely not covering them with compo?

THE ARCHITECTURAL MUSEUM.

We would remind our readers that the Museum is open on all days of the week, excepting Saturday, from ten till four o'clock; and (from Monday, the 1st of October), till Wednesday, 19th December next, both inclusive, on the evenings of Monday and Wednesday from 7 till 9 o'clock. One guinea per annum makes a member: for students, the subscription is 10s. 6d. Admission to non-subscribers is 6d. for the day: Art-workmen have admission in the evening, free. Lectures will be delivered at the Museum during the autumn session, viz.:—

Oct. 15. On Heraldry in connection with Architecture, by the Rev. C. Boutell.
Oct. 29. On Architectural Metal Work, by Mr. Skidmore.
Nov. 12. On Form, Light, and Shade in Architectural Foliage, by Mr. J. K. Colling.
Nov. 26. On Colour, and its use in Architectural Art, by Sir Walter C. James.
Dec. 10. On the formation of a National Museum of Architectural Art, by Mr. Bruce Allen.

Moreover, an evening class for the *practice* of stone and wood carving has been organized. Some of our readers should avail themselves of it.



ALL SAINTS', KENSINGTON: CLERESTORY WINDOW, SHOWING MOSAIC WORK.

NOTES OF IRISH WORKS.

The new Roman Catholic church of St. John, at Limerick, is to be built according to designs by Mr. P. C. Hardwick (of London), architect.

It may be in the recollection of our readers that some years since a competition was advertised, and premium offered for the *best* design for this church; but after a lapse of many months, it seems to have been decided that *no* plan *was the best*, for the premium was *not* given, and the plans returned in some instances without a word of apology. This called forth some appeals to the public press, ourselves amongst the number, and we are even now informed that at the time the competitors' drawings were in Limerick, suggestions for the proposed building were taken in a substantial form therefrom. However, if such account be correct, the high professional character of the gentleman now engaged may at once set at rest any apprehensions as to plagiarism. We always, however, as a matter of justice to the profession, bring before the public complaints received of parties acting out of the usual course.

A new lattice girder bridge, by Messrs. P. Mc Swiney and Co. has been fixed on the Glanmire road, in connection with the terminus at Cork of the Great Southern and Western Railway. It crosses the south face of the tunnel at an elevation of about 17 feet, connecting the new road made by the company, and consists of two main girders of plate and angle iron, rivetted at top and bottom, and connected by latticework. The roadway is 34 feet, and footpaths 8 feet each. The roof of the goods store, 40 feet span, is supported by wrought-iron lattice girders, on the same principle. Messrs. Mc Swiney and Co. are stated to have several iron girder bridges in course of completion for Limerick and Foynes and Mullingar and Longford lines.

Additions are to be made to the barracks at Cork for the accommodation of an extensive force, according to the local journals.

The first stone of a new hospital under the direction of the Sisters of Mercy has been laid by Archbishop Cullen. The site is in the open space at the top of Eccles-street, Dublin, and the proposed building is to be called the "*Mater Misericordiæ.*"

A new harbour and pier is to be built at Wicklow by Mr. John Killen, who has been declared the contractor.

A new church is to be erected between Richhill and Portadown.

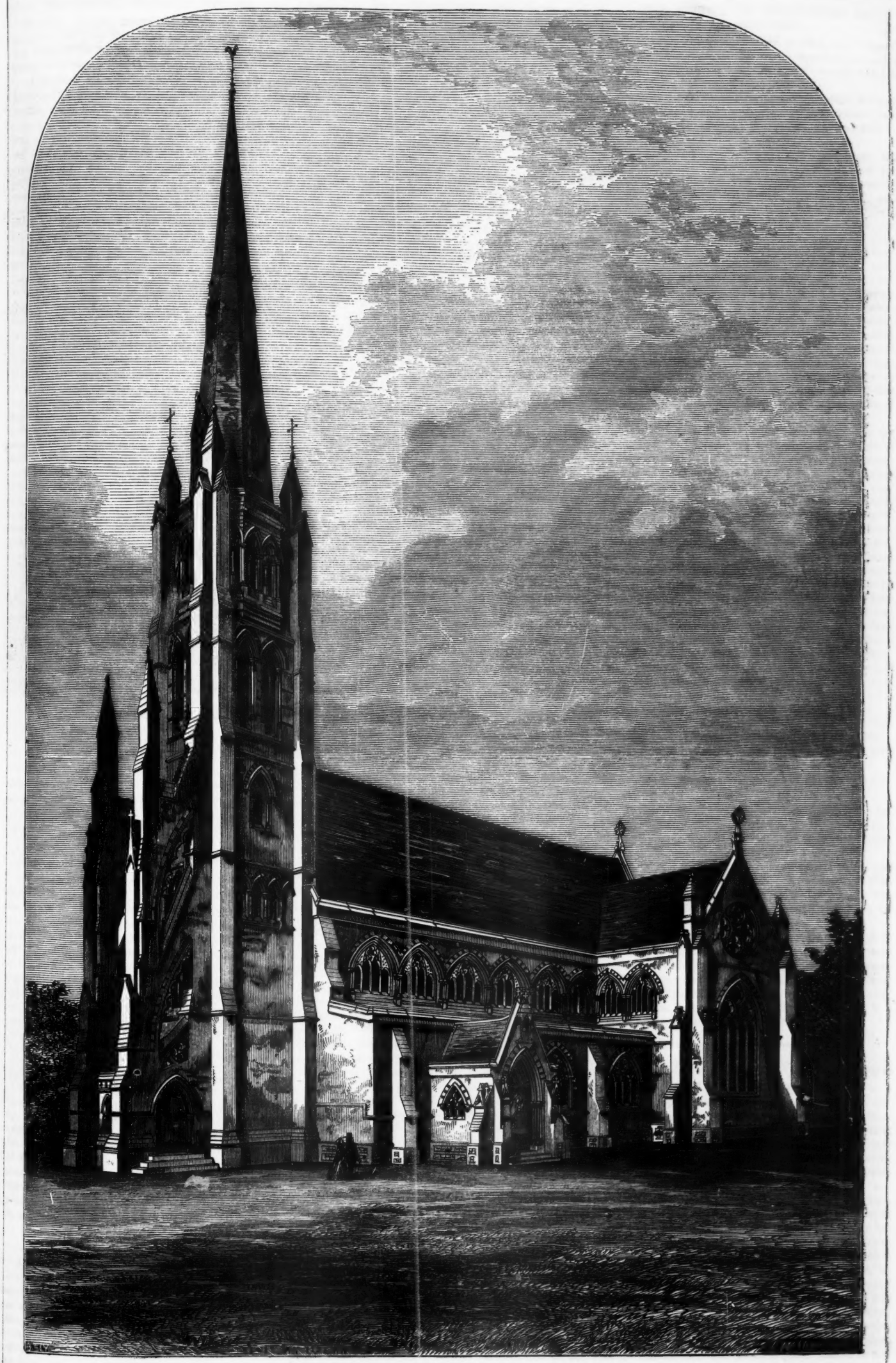
CHURCH OF ALL SAINTS, KENSINGTON-PARK.

This church is situate near the northern extremity of the Ledbury-road, Kensington-park. It was commenced three years ago, and is now covered in and glazed. It is faced, both internally and externally, with Bath stone: this is relieved by the introduction of bands and arch-stones of coloured stone,—red, grey, and buff,—brought from Sudely, in Gloucestershire, Nailsea, in Somerset, and St. Columb, in Cornwall. The pillars of the nave are Devonshire marble: three of these are monoliths, and three coursed. Devonshire marble is also extensively used in the monials of the clerestory and other detached shafts. These are not yet fixed. The octagonal stage of the steeple contains a great deal of constructional colour, both in bands and in shafts.

Internally, the lower part of the walls, from the floor to the string all round, is lined with black, red, and buff tiles, and bricks in courses, the gradation of colour being so arranged as to increase in lightness upwards. The height of the lining also increases eastwards, *i. e.* in the transepts, chancel aisles, and chancel, by proportionate gradation. There is an extensive and lofty clerestory. The windows are in pairs: a portion of the head forming a spandril between the heads of the side lights and middle lights, instead of being pierced as tracery, is left plain, and filled with inlaid mosaic work. The design consists almost entirely of an arrangement of gold, red and blue circles, and triangles: on the inside of the church these are formed into flowers, and connected with green stems, as shown in our illustration. The colour of the green is chrysopase: that of the blue is turquoise, cerulian, and ultramarine. The workmanship of this was executed by Mr. Steven, of Pimlico. These windows internally have moulded Bath stone caps and bases, to receive detached marble shafts. The roofs are as yet neither stained nor painted. The window-sills of the north aisle are raised, for the formation of a cloister to connect the church with future domestic buildings. The span of the chancel is the same as that of the nave (27 feet 6 inches in the clear), and allows of the pier of the chancel-arch being very small, thus adding to the general effect of spaciousness. The glazing is in large rectangular panes of cathedral tinted glass, separated in their height by bands of blue and ruby. Each pane extends from mullion to mullion, and is from 10 inches to 14 inches in height. A running pattern is painted up the centre of each light, and the lights of the tracery are slightly relieved by the introduction of a little coloured glass in simple geometrical patterns.

The architect's assistant, Mr. T. Butler, has been acting as clerk of the works. The builder is Mr. Myers, of Lambeth; and the architect, Mr. William White.

The buttresses against the west front of the tower are not yet built, but their erection has been determined on: nor is the spire yet finished.



CHURCH OF ALL SAINTS, KENSINGTON-PARK.—MR. W. WHITE, ARCHITECT.

PROVINCIAL SCHOOLS OF ART.

Several of the annual meetings of provincial schools of art have been held within the last week or two, and, on the whole, a good deal of interest continues to be manifested in favour of such schools.

At *Sheffield*, the annual meeting was held in the Music-hall, on Wednesday week; the Right Hon. John Parker in the chair, supported by Lord Denman, and other gentlemen. The report referred to the arduous duty which the council had had to discharge of selecting from 116 designs the plan for a new school, expressing gratification that their choice appeared to have been approved, and hoping that within a year it would be in active operation. Mr. Ald. Mycock had contracted for the erection, at a cost of 4,400*l.* including some alterations in the original plan for heating and ventilation. This, with 949*l.* paid for the land, 1,000*l.* for furnishing, architect's commission, &c. would make a total of 6,349*l.* The subscriptions were 3,500*l.* leaving 2,849*l.* to be provided for. Desirous that the building should be free from debt, it was proposed that a bazaar should be held, to which the noble families of the neighbourhood had become patrons, and the council had such assurances of support, that they anticipated the bazaar would be one of the most successful ever held in the town. As soon as it could safely be accomplished, the council proposed to open an exhibition of paintings, ancient and modern, and they had reason to hope they should be able to place before the public such an exhibition of works of art as had never been seen out of the metropolis. The school continued to hold its honourable position. The students of the past year were—males, 242; females, 52. These numbers, considering the defective arrangements of the present schools, indicated a strong desire for art-education. It appeared from the accounts that the Government grant was 520*l.*; students' fees, 220*l.*; subscriptions, 204*l.* The principal expenses were—rent, 80*l.*; salaries of master and assistant-secretary, 652*l.*; attendants, 58*l.*; expenses, 128*l.*

Mr. Parker, in his able address, remarked that to obtain a proper understanding of art, the new and wise theory was, that we must endeavour to attract into affiliated connection every school disposed to join in the organization, in order that we might have an educated taste. We aimed to produce works of art, and when they were produced, we desired to have a population able to tell us whether they be really works of art. This had been done in several districts with success. Its advantages were obvious, and he trusted they would be participated in more largely than hitherto in this neighbourhood. The plan was to allow all schools within a reasonable distance to affiliate themselves to the central school, and thus to promote in them correct drawing, and such other parts of artistic education as the time their pupils could give to the subject might permit. The more this object was pursued, the sooner we should have a community educated in art. In point of fact, the carpenter and the mason, besides learning to do the mere work of their trades, would learn to make sections, to draw lines correctly, and to understand better the plans by which they were to work. It was to the want of artistic education that we were to ascribe much of what was said as to the superior understanding of art on the continent, and to our uninformed and inadequate appreciation of works of taste in England. We were now come to an age in which people and nations were brought nearer together than before. Railways, steamboats, the electric telegraph, the tendency of expositions, all had increased the communication between neighbouring nations, and had brought them so near that, to say nothing of higher considerations, other things being equal, the country that did not cultivate its taste—that in producing articles durable and useful did not also make them such as it was pleasing to look at by the side of those of other countries—was very likely to be distanced in the race. Not only our ambition, but our national interests forbade us to neglect these subjects. He was struck the other day, in reading the *Builder*, to find, in an article on the education of the lower classes, some remarks on the miners' school at Alston, which Mr. Parker quoted, with a kind and complimentary allusion to our journal. The speaker then strongly recommended both student and master to

> "Let Grecian models be their chief delight,
> Read them by day and study them by night."

At the meeting of the *Coventry* school, Sir Joseph Paxton was in the chair, and delivered an energetic address, in which he expatiated on the necessity of an active art-competition with France, where, during the last three centuries, whatever had been her troubles or her difficulties, and they had been many, she never for one moment had relaxed in her efforts to foster and push forward by every possible means the arts and designs in connexion with manufactures: indeed, he remarked, the objects of interest in the country were such, that no person could go from London to Paris without being made aware of the fact, as it was at once before his eyes: all kinds of excellent designs were in every place of amusement, in the cafés and restaurants; for the decorations in a restaurant cost as much as any room of her Majesty in Buckingham Palace. These decorations, he was going to say, were as common as bilberries: they were to be seen at every corner of the street, and for one penny expended in orange water, anybody could go in and see the decorations of the rooms. This was carried on, not only at Paris, but in every town in that country, so that the people had constantly before their eyes excellent and beautiful designs. This certainly did not accord with our notions in this country; for if they were to take their wives or families to London to-morrow, and wanted to get some refreshment, they would not know where to go. There was this difference of character between the two great places, and he must say London suffered very much in the comparison. He dared say that they would think it very curious, and a great talk would be made of it, if his friend on his right, the mayor, were found sipping his coffee at a restaurant's in their Market-place; but this was common in every town in France, where they all assembled to hear and read the news: they also took their wives and daughters, there being no difference in this respect between the sexes, so that the people were enabled to get some idea of the decorative arts. It was this which employed such a vast number of persons in performing these decorations, which were enjoyed by everybody in France, from the highest to the lowest.

As to the interest in art displayed in Coventry, although the school had suffered from the change in Government tactics, as well as from other causes, amongst which, perhaps, Sir Joseph might have urged a little more strongly the necessity for the ribbon and watch manufacturers dipping their hands a little more deeply into their own pockets, he adduced the fact, that in the course of four days' exhibition of the art works sent down from Gore House, 11,000 persons had visited and seen these works at Coventry, which, more than anything else, he said, satisfied his mind as to the progress of a desire to foster the school of art in this town. In conclusion, Sir Joseph remarked that one thing had struck him with much surprise in walking round the room—he should tell them the truth—when he got to the end, he could not help asking, "Where are the ribbons?" "Where is the staple commodity?" There was everything nicely done—but no patterns of ribbons. He thought he should offer a prize—a good one, next year, to be competed for by the ladies, but it would be for ribbons.

The *Burslem* meeting was held on Friday in last week, and the attendance was an overflowing one. Mr. C. B. Adderley, M.P. was in the chair, and Mr. Minton was amongst those on the platform. Mr. Adderley also expatiated on the art-precedence of France, but in giving the statistics of art-works at the Paris Exhibition, he forgot one amongst various, certainly right reasons, why France was ahead of us in the number of art-works exhibited, namely, that France contains a good many more *people* than England does. Still the conclusions which he drew from the whole were in the main correct. It appeared, he remarked, that of the works of art, 2,700 were contributed by France, 800 by England, 650 by the German States altogether, and three by Turkey. Now, he asserted that any just comparisons instituted as to the relative importance of these nations would be borne out in the main by a comparison of these statistics. The two leading contributors they saw to be France and England, the nations which might be said without vanity to stand foremost in the world. The German States, which, he thought, by their own admission, in this great European struggle that must be looked on as a test of the relative power of nations, had occupied a secondary place on the theatre of the world, were also found in a secondary position in the Paris Exhibition. As to Turkey, he might observe that her three works of art were no unfit representation of the triple alliance, which alone saved her from annihilation at this moment.

The Burslem School is almost in its infancy as yet, this being but the second year of its existence, but it is considered to be making favourable progress. The average number of students on the books is fifty-six, according to the report, which states that the success of the school is exceeding the most sanguine expectations.

In reference to the subject now under notice, we may observe in conclusion, that the School of Art at *Dunfermline* appears to be taking root. The master, Mr. L. Baker, delivered a kind of general and introductory lecture on the subject of science and art last week, which was largely and respectably attended. The Lord Provost and other public men of the locality were present, and all appeared to take much interest in the subject.

THE SUPPLY OF QUANTITIES BY ARCHITECTS.

Touching the query raised, p. 467,—in "Scott's Reports," vol. vi. p. 1, is to be found the record of the opinion of the judges (*in banco*), on the point in question.

The case arose thus:—The guardians of the Whitney Union employed Mr. Kempthorne to prepare plans for a new workhouse, and afterwards directed him to get in tenders.

He appointed (without any authority from the guardians) Mr. Moon, a surveyor, to take off the quantities, but before the tenders were delivered to the guardians, they and Kempthorne disagreed, and the works, as then intended, were abandoned. Subsequently Kempthorne received payment for his services, and Moon, having been refused payment by the guardians, tried the case, on circuit. The defence set up by the guardians was, "No privity," or "contract." The jury found for the plaintiff (Moon), but the defendants, having moved for a new trial, the case was argued in the Common Pleas, Westminster, before Chief-Justice Tyndall, and Justices Parke, Collier, and Bosanquet; the late Serjeant Talfourd appearing for the guardians, and Serjeant Wilde (now Lord Truro) for the surveyor (Moon). The four judges held that "An architect has the right and power to pledge his employer's credit to a surveyor for the quantities, and that in so doing he is acting as their agent."

About the year 1850, another case was tried in the Court of Exchequer, before Baron Martin (Wright *v.* Attenborough); and this year I recovered payment from the Board of Guardians of Brighton for quantities supplied for the Industrial Schools that they contemplated building, but which they afterwards abandoned. I was appointed by their architect, Mr. Collins. In my case a greater difficulty arose, namely, the guardians of Brighton have a local Act, and are, therefore, differently constituted to the generality of boards of guardians. The clause they brought forward was one that requires "All contracts to be reduced to writing, and signed by the parties." Fortunately for me, by that local Act, the guardians had no power to build schools, and, therefore, the judges held, that the local Act could not apply in my case.

In the case of an architect being his own surveyor for the quantities, no doubt a legal difficulty would arise, independently of which it is in principle bad, and places the architect in a wrong position with reference to the contractor.

I have gone into greater length than I at first intended, but as the profession generally do not know that the point is a settled one, perhaps you will give this statement a place in your columns.

Robt. W. Armstrong.

Surely your correspondent "Sub" will not venture to contend that he, or any architect, is permitted to entail any additional expense upon his clients, without first obtaining their sanction.

If it is necessary that the quantities should be got out, the client should in all cases be told openly that the expense will ultimately fall on him. This is the honest way of doing business, and the only one an honest architect should follow.

It is a surveyor's and not an architect's duty to take out quantities, and, although many architects perform such duty, on account of its being a lucrative contingent to their profession, still, they place themselves in the position of the surveyor, and can only expect to be remunerated for their trouble when a *direct order* for such work has been given them.

W. G.

THE WORKS AT WORCESTER CATHEDRAL.

WORCESTER ARCHITECTURAL SOCIETY.

At the annual meeting of this society held a few days ago, a communication was read from Mr. Truefitt, in the course of which he said:—The numerous copies of old buildings which had sprung up of late years were almost a disgrace to the present generation, inasmuch as they were servile imitations, exhibiting nothing original. He did not mean to say that the architectural profession had not many members who knew how to use their own ideas, but such men at present were in the minority, probably because they were so little wanted; most people therefore continued to be guided by the greater number and by unprofessional societies. These societies, he admitted, did good up to a certain point, by bringing people together and making them think and ask questions about what they had never cared for before; but when their members had to do with church *building*, they almost always went wrong—their ideas being antiquarian, not architectural. Now, it was quite right, in *restoring* a building, to take the antiquarian view of the case,—never to pull down any work and rebuild it in another style, but always to prop up and patch an old building in all its varieties

of form,—never to pull down elegant spirets at the angles of our cathedrals because they were not of the date of the original building, but to restore them,—never to remove such quaint original buttresses as those flying ones at the east end of a certain structure not a hundred miles from the Faithful City, merely because they were not there when the building was first erected; for if such mutilations were fully carried out, nearly all our churches would be eventually pulled down with the exception of the original portions; namely, the Norman doorways and broken fonts. Our buildings should be restored just as we found them: if there were a Norman nave and a Decorated chancel, restore each, but do not try to make them alike: a building should be mended just as we patch an antique chair or rivet an old china bowl. If such societies as this confined themselves to restoration in this spirit, it would be well; but in new buildings it generally happened that these societies would make them imitations of some existing and favourite church; and thus it was we had so many Skelton churches about the country, so many Newark and Stamford spires, Sompting towers, Suffolk roofs, Malvern pavements, Norbury glass—in fact, one might go into a new church now, and find an authority for everything, from the tower down to the vestry poker. People would not look at a design that was new and to be fitted up for a building of the present age; and thus an architect was bound to reproduce works of a former generation to meet the views of a society or committee of *taste*. The sensible and correct way, however, was to use all that had been done in past times as our A.B.C. to make ourselves thoroughly acquainted with that alphabet, and then to design simply with the materials of the present day—bricks, glass, iron, everything that could be got, so that we built for the wants of the time we live in, endeavouring to advance and not to retrograde in church architecture as well as our domestic buildings. What would people say if, at the next exhibition of the Royal Academy, Sir Edwin Landseer, Dyce, Mulready, Eastlake, or Stanfield, were to send nothing but copies of old pictures, instead of producing new and beautiful compositions? Would such a thing be tolerated, however truthful the copies? No. Neither should architects be allowed—or rather obliged—to copy from their old masters.

THE IRON TRADE.

The following statement of the principal orders for castings in the Glasgow iron market, during September, 1855, has been forwarded to us by Mr. T. Edington:—

4,000 tons railway chairs for Cheshire; 700 tons railway chairs for Nova Scotia; 4,000 tons railway chairs for London; 1,200 tons railway chairs for Liverpool; 1,000 tons water-pipes for Bombay; 500 tons water-pipes for Sunderland; 50 tons water-pipes for Hastings; water-tanks for Honduras and Isle of Wight; 3,000 tons water-pipes for Liverpool; 500 tons tank-plates for London; 300 gas-pipes for Rome; gas-pipes for Tower of London, Carnarvon, &c.; 40 tons iron beams for Cork; steam-engine, &c. for Exeter. Also contracts for British, French, and Turkish munitions of war. The Copenhagen gas and water contract has been lately taken by a London firm, and they have applied to the Glasgow iron founders to supply them with a large quantity of castings.

The ironfoundry trade of Glasgow, says our informant, has been, on the whole, very good, and the demand for castings considerable during the last five years. In that period a number of new works have been erected, and old ones extended. There are now upwards of 100 iron foundries in the west of Scotland, which can produce, when in full occupation, a very large quantity of castings, more particularly for railway, gas, and water works, public buildings, and bridges. The demand for the next five years has every prospect of being greater than during the last five years. A few of the principal new contracts in view at this time are as follow:—Very large quantities of castings for Loch Katrine Water; gas and water supply for Copenhagen; gas supply for Buenos Ayres; railways in Egypt, India, Australia, and Nova Scotia. Besides all these, there will be castings required for railway, gas, and water companies, over the greater part of the globe by-and-by, the principal part of which will be produced in Scotland.

The first cargo of the Ballycastle, Blackband Ironstone, county Antrim, Ireland, which is said to be very rich, will be delivered at Glasgow this month; it is quite equal in quality (adds our authority), to the very best Monkland stone, and is twenty-six miles square, and nearly 3 feet thick.

"We very much fear" (says the *Birmingham Journal*), "that the mischief resulting from continued changes in the price of metals has not been fully experienced. Last week we reported the resolution of the preliminary meeting of the ironmasters at Handsworth, declaring an advance upon the price of iron of 1*l.* per ton. It was hoped, and, indeed, believed, that that resolve would have been adhered to; but we are since informed that the attempt is to be renewed to put on still another pound. . . . It is more than doubtful whether so considerable an advance as is contemplated can be maintained. The ironmasters will have themselves to blame for whatever mischief results from this unwise attempt to push up prices in existing circumstances: if persisted in it will operate most prejudicially on the trade generally, both of the town and the district."

THE BARRACKS COMPETITION.

We are told that more than 130 designs have been sent in in reply to the offered premiums, including some by men of high standing in the profession. We have received four letters to the effect of the following, but cannot vouch for the accuracy of the statement:—

Sir,—I have just heard that ———, who is on the Barrack Accommodation Committee, is a competitor, though the particulars have been asked for, and the design submitted under the name of the chief of his staff.

I invite you, sir, and all competitors, to protest with me against this last phase of architectural competition.

M. R. I. B. A.

IMPROVED DWELLINGS FOR THE POOR IN LAMBETH.

The Directors of the Lambeth Association for providing improved Dwellings for the Labouring Classes have determined to avail themselves of the facilities afforded by "The Labourers' Dwellings Act," and to proceed at once to obtain the certificate of incorporation. Ten thousand pounds of the proposed capital are already subscribed for. H. R. H. Prince Albert has consented to become the patron, and has added his name to the list of shareholders. The Council of the Duchy of Cornwall has also subscribed for 100 shares of 10*l.* each on behalf of the Prince of Wales. The Archbishop of Canterbury, Miss Coutts, Sir M. Peto, Mr. Wilkinson, M.P. and other influential and benevolent persons are among the shareholders. It is most probable that this will be the first association formed under the new Act, as no application has yet been made to the officer appointed by it for the certificate of incorporation. We much fear that the great advantages which the Act confers are not generally known.

TEMPLE OF SERAPIS, POZZUOLI.

A writer in the *Athenæum* speaks of an event here which must awaken the regret, if not the indignation, of the whole artistic and scientific world. He says,—The circumstances I allude to are connected with a new arrangement of the columns in the Temple of Serapis at Pozzuoli, and it is impossible to think of it without lamenting deeply that the superb ruins of this kingdom, so rich in antiquities, should be at the mercy of men who display the utmost ignorance of the first principles of art and science. I express myself strongly as the occasion seems to me to require, for this sacred spot, with its three grand columns, has now lost its character, and been transformed into a piece of mere patchwork. But to the point. The Temple of Serapis, built at a very remote period, has for many years been used as a place of deposit for marbles, fragments of sculpture, and columns, of which the precious columns of alabaster now in Caserta formed a part. In fact, everything of an antiquarian interest that has been discovered in this neighbourhood was placed within the precincts of this Temple, and lay here like the dry bones of an age past away until modern taste or caprice should restore them to a new architectural existence. The stranger who has visited Pozzuoli must well remember the interesting fragments which lay scattered round the lateral porticoes of this ruin. So placed, they harmonized well with the spot; they seemed like the representatives of former magnificence, and their fragmentary forms breathed forth homilies on the littleness of human greatness. Well, our Neapolitan *savans* have "*changé tout cela*," and in the true spirit of a London bricklayer who sets about building a snug smoking-box for your small citizen, have set up the columns on end, and have transformed the Temple of Serapis into a Temple of Folly. Walk round it, and you will no longer recognise it—the spirit of the place has fled—it is no longer the solemn site of a venerable temple—it is a doll-shop—a toy which boys have put together on a fine summer morning "*pour passer le temps*." It is but justice, however, to state the motive which led to this ridiculous violation of the rules of taste and of art, though the very exposition of the motive will render the folly of the proceeding only the more apparent. The entire area of the Temple is, as must be well known, under water, the drainage of which was deemed impossible without removing the fragments lying around. So in a happy moment, as happy a thought struck our *savans*, that it would be as well to stick them up on end and clear the space by improvizing a new Temple. No sooner said than done. Now it should be known that the sea is much higher than the level of the Temple, and that from the high grounds around during the rainy season an ocean of water descends, which it is impossible to carry off. It may be taken out, but cannot be carried off, and with such an operation twice the number of prostrate marbles would not have interfered. There is nothing, therefore, to justify the act.

The columns, both prostrate and erect, were a species of self-registering hydrometer. At intervals, one marks the holes in them where, with the rise of the sea, "*mitili*" and "*folaoli*" penetrated the marbles and made their temporary homes,—and, about forty palms high, are visible the last labours of these little animals to convey to a future age information of the turning point in the last ebb of the Mediterranean. The confusion, therefore, which has now been introduced destroys the certainty of this great natural hydrometer, and tears, as it were, from history a page which can never be replaced. By whose counsel this most wanton act has been performed I will not inquire; but in the interests of correct taste, art, and science, it ought to be denounced, so that men who call themselves *savans* may be deterred from committing future errors, if they cannot redeem the past.

CAST AND WROUGHT IRON.

A reference having been made in your last number but one to Mr. Fairbairn's work on cast and wrought iron, may I make a remark or two on my perusal of that work? On referring to p. 77, it is stated that a wrought-iron beam of the same depth, bearing, and strength of a cast-iron one, would only weigh a little more than one third that of the cast-iron beam. Now the constant numbers used by Mr. Fairbairn are 26 for cast iron, and 75 to 80 for wrought iron, or as 1 to 3;

Mr. Fairbairn's formula, $W = \frac{a\,d\,c}{l}$ and Mr. Fairbairn's form of sections in cast iron, is bottom flange to top flange as 6 to 1, and in wrought iron, is bottom flange to top flange as 1 to 2: it therefore follows that a cast-iron beam with area of bottom flange 12 inches, and top flange 2 inches, equals 14; while a wrought-iron beam of equal strength will have bottom flange 4 inches, and top flange 8 inches, = 12; and the weight of a cast-iron beam is to the weight of a wrought-iron beam of equal strength as 14 to 12, instead of 3 to 1, supposing cast and wrought iron of the same weight. But the difference would be still less if we follow Tredgold, who makes the weight of cast iron to that of wrought as 3·2 is to 3·3. I have not taken into account the vertical portion of the beam between the ribs, as it does not enter into the formula of Mr. Fairbairn, and which appears to me to be the only portion as 3 to 1, by making the wrought-iron beam $\frac{5}{16}$ in. thick, while the cast-iron beam is 1 inch (see p. 77). There is one other matter in Mr. Fairbairn's work which I will notice: it has reference to his report on the causes of the fall of the cotton-mill at Oldham (p. 170). In note to p. 173, it is stated that the beams supporting the arches, of 10 feet 6 inches and 11 feet span, had to support loads of 10 to 11 tons respectively. Now if we take the superficial extent of flooring for weight, the longitudinal beam resting on the gable end wall and on the centre of the transverse beam will be loaded with about 8½ tons, diffused along its length, and being supported at both ends, would necessarily throw but one-half of its load, or 4¼ tons on the centre of the transverse beam which gave way, instead of the 8½ tons mentioned by Mr. Fairbairn (see top line of p. 174). I shall be glad to be put right if in error.

Z. Z.

PATENTS.

Amongst the specifications of patents recently filed is the following, as given in the *Mechanics' Magazine*:—

"Roberts, Charles Henry, of Cornwall-road, Lambeth, Surrey. An improvement in the manufacture of rubbers for painters and others. Patent dated February 26th, 1855. (No. 421.) This invention consists in the use of ground pumice-stone in the manufacture of artificial rubbers, in place of employing pumice-stone in the natural state."

The following appears under the head of "Provisional Protection:"—

"Johnson, John Henry, of Lincoln's-inn-fields, Middlesex, gentleman. Improvements in machinery or apparatus for rolling and shaping metals. (A communication.) Application dated March 1st, 1855. (No. 457.) This invention consists in combining an ordinary plain roll, or a roll slightly modified in form according to circumstances, with a block or plate running on a centre, and having a groove or slot

formed in its surface corresponding in curvation and shape to the article required."

The following come under the head of "Provisional Specifications not proceeded with:"—

"Cooper, Joseph, of Lionel-street, Birmingham, Warwick, brace and bit manufacturer. Certain improvements in joiners' braces, and in the mode of forming or partially forming the various bits to be used with such or any other kind of brace. Application dated February 27th, 1855. (No. 428.) This invention comprises an alteration in the form of the spindle or mount which unites the head to the stock, and on which the head works. This spindle is of a parabolic form, curving outwards at the base, for the purpose of giving a proper bearing to the neck, and equalizing the friction from the pressure and action on the head, while in use. Also the use of a screw-pin to be placed in the front or side of the stock, just below the base of the spindle or mount, for the purpose of better securing the some to the stock, &c."

"Taunton, William George Henry, of Liverpool, Lancaster, civil engineer and patent windlass-purchase manufacturer. Improvements in pumps, pump-gear, and pump-buckets. Patent dated March 2nd, 1855. (No. 466.) This invention consists in enlarging the barrel of the pump above the lower valve, so as to form a spherical, egg-shaped, or other conveniently-formed chamber, between the lower valve and the lowest point which the spear valve reaches in its downward stroke."

Miscellanea.

Photographs from the Crimea.—The importance of photography has never been more strikingly shown than it is by Mr. Roger Fenton's singularly interesting series of photographic pictures taken in the Crimea, and now on view at the Old Water Colour Gallery, Pall-mall. They divide themselves into three sections, scenery, views of the camp; incidents of camp life, groups of figures; and historical portraits, and under these headings are about to be published by Messrs. Agnew and Sons. Mr. Fenton is entitled to the thanks of all for what he has done: it is no common achievement. Some of his landscapes in the Paris Exhibition distance those of all competitors.

The Smoke Question at Leeds.—After a long discussion, it has been resolved at a meeting of the inhabitants of Leeds, "that a subscription of 120*l.* a year be raised for three years, for the purpose of abating the nuisance arising from smoke, and that a committee of five be appointed to carry this resolution into effect; and that a further subscription of 120*l.* a year for three years be raised, for the purpose of giving premiums to such enginemen as shall, under difficult circumstances, consume their smoke in the most effectual manner." It is surely time that something complete was done.

Shortening of Spofforth Church.—Your correspondent, "M. R. F." accuses the Yorkshire Architectural Society of apathy in the case of the late alteration of Spofforth Church, and it is probable that the letter of "An Old Member of the Society," which appeared in your last, may be looked upon by some as at least a corroboration of your correspondent's charge, I beg, therefore, in defence of the society, to state that it was entirely in consequence of its representations to the ecclesiastical authorities that the matter was brought before the diocesan court, and that a memorial, protesting in the strongest manner against the threatened mutilation and transformation of the church was drawn up, and *unanimously* adopted by the committee, and submitted by them to the court.—William Hey Dykes, Secretary of the Yorkshire Architectural Society.

Sanitary Paints. — My attention having been called to a communication in your valuable journal of 29th September, describing the Lacboracic Paint, wherein the writer alludes to my patented sanitary paints, apparently classing my invention with his, which I consider may have a tendency to engender erroneous ideas as to the nature and character of my invention, which is no mere theory, having been practically tested, and declared to be of great public benefit,—I may state that it is the result of upwards of eleven years' study and practice by myself, as a colour manufacturer and house-painter of nearly forty years' standing, and having acquaintance with the affinities of all available chemicals and ingredients necessary. Therefore, I court the investigation of any chemical or practical men in any branch of trade, and am also ready to prove all I have asserted in writing, or in print, as also by ocular demonstration, submitting the same to the severest tests. The cause of my invention not having yet been carried out arises from the difficulty to obtain a *bonâ fide* capitalist, or to form a company for that purpose.—Arnold Morton.

East-end of St. Paul's.—Would you allow me to suggest a plan for the disposal of the ground at the west-end of Cannon-street, Cheapside? Would it not be possible to set back the projecting corner of the house on the south side of St. Paul's School, flush with the school, and when the houses at the other end, the Cathedral Coffee-house, &c. shall also have been taken down (as I believe it is not the intention of the City authorities to renew the leases), a fine wide roadway, with the massive front of the school standing out, would be obtained. Also, pull down the houses, forming part of Old Change, the baker's shop, and Phillips's warehouses, and bring new houses, in character with the rest of the street, forward, as far as a line drawn from the front of St. Paul's School: thus covering the present roadway, and enabling, at least, two large houses or warehouses additional, to be added to the length of the street. And, further, if at any time the bridge at Paul's Wharf should be thrown across the Thames, what better road could be had than one direct from the Post-office and Aldersgate-street?—Amateur.

Brighton and Sussex Society of Arts.—The object of this society is the promotion of the fine arts in the town and country, by means of annual exhibitions of paintings, the application of its surplus funds to the formation of a permanent gallery, &c. Their first exhibition (already referred to) was opened on the 17th ult. and besides a number of local artists, they have had the assistance of upwards of eighty artists from London and elsewhere. It is intended to open the gallery in the evening for the benefit of the working classes, and also, if it meet with sufficient encouragement, to have an exhibition of the works of the old masters and others, to be borrowed for the purpose from private collections.

Homes for the People. — Sir: Your August monthly part contains on page 370, a notice of a recently published work of mine, "Homes for the People," to which I beg leave to reply. The resemblance to the quoted sentences of the book in question, to passages in your excellent little work, "History in Ruins," is so justly shown, that I cannot blame the feeling that has led you to speak so warmly of the absence of all credit to the source from which the spirit of my remarks had been derived. You do me, however, an injustice in two instances—the one, sir, speaking of the "Homes for the People," as a compilation, which a perusal will show you it is not; and, although of course you could not know it, the absence of reference to your own well-known little volume was entirely accidental, and occurred in the following manner:—The "Homes for the People" was ready for publication a year ago, and by a disastrous fire in this city, the whole—then ready for issue the *next day*—was one Sunday, entirely destroyed—stereotype plates, MSS. and, in fact, every vestige of the book, excepting two portions of the work, of about ten, and in another portion, about twenty consecutive pages. In the original work, I specially called attention of my readers to the excellent little manual "History in Ruins;" but it so happened in re-preparing the present volume for the press, the portions saved contained the passages you have quoted, and I forgot to give the credit where it is so justly due. Although this does not alter the public impression of the work, you will, I trust, believe my assurance of the purely accidental omission of proper recognition of your claims. I have consulted my publisher in reference to the matter, for it is equally his wish with mine that no semblance of dishonest appropriation of the brain-coinage of another should appear in a work which I have endeavoured honestly and carefully to write; and as the work is stereotyped, there being no course but in a future edition to append a foot-note, which will seem but a bungling after-thought, I hope you will content yourself with this explanation, at the same time remarking that, if you wish me so to do, I will with very great pleasure, add any reference to your work that can effect the object you desire. In a work I am now writing, I will make the *amende*, and were it not that I so entirely sympathise with your proper author-jealousy, I would not thus take the liberty to write you. I may add, as a Yankee consolation, that perhaps it is better for *you* as it is, for *had* I referred to your little volume, and had I praised it, as I must have done, some enterprising publisher would have pounced upon it, and would have got out a cheap reprint here at once, to the destruction of all hope of profit to you from its legitimate sale. I have to write hastily to save this present English mail, but I trust I have given you sufficient explanation to satisfy you I intended no ungentlemanly picking and stealing from your own flower border. I shall be glad if you will publish this note in the *Builder*.

New York. Gervase Wheeler, Architect.

*** This frank acknowledgment on the part of Mr. Wheeler entirely disarms us. We shall hope to find the work successful.

Improvements in Ship-Building. — We lately noticed the providing of iron ships with hollow or tubular iron spars. It now appears that not only foreyards, but mainyards and even masts are likely to be made of tubular iron. A mainyard 112 feet long and 2 feet 4 inches diameter at the slings, has just been made of tubular iron at Liverpool. It weighs only 7 tons, or about one-third less than a timber *yard*. What we at present desire more particularly to notice, however, is the novel application of vulcanized India-rubber to the sheathing of ships, and the fabric of sails. Among the patents taken out by a Mr. Goodyear, in respect of the application of India-rubber, is that of sheathing, on the ground of its less cost, that it will not corrode, that it is as easily applied as copper, and that its durability is greater. When used in the construction of sails, it is found that they will not stiffen, nor will ice adhere. It is also proposed to be rendered available in the construction of ships' boats. The patents further include the application of this substance in packing, paying seams, in the formation of buoys, ships' letter-bags, provision-bags, water-tanks, tarpauling, &c.

Coal and Iron Trade of West of Scotland.—From returns obtained through Mr. Williams, inspector of mines for Scotland, it appears that while in 1854 there were 367 collieries in Scotland, 337 of these belonged to the West country. It also appears that, during the same year, there were 7,448,000 tons of coals raised in Scotland, and of these about 6,448,000 were drawn from pits in the four western counties alluded to. The produce in 1854 (at an average of 7*s.* 6*d.* a ton), is estimated at about 2,418,000*l.* sterling. Of the coals so produced, 2,152,800 tons were consumed in the manufacture of pig iron; 367,200 in the conversion of pig into malleable—making in all 2,520,000 tons used in connection with the manufacture of iron; while 926,221 tons were shipped, and 148,312 tons were sent beyond the boundaries, northward and southward, per railways, leaving for the manufacturing consumption, steamboats, and domestic use of the Glasgow district, 2,853,427 tons. During the same period the number of persons employed in the collieries producing this quantity of fuel, were in all, 22,980. So late as 1830 there were only sixteen blast furnaces in the west of Scotland, and the whole produce scarcely reached 40,000 tons. It appears, however, that during 1854, of 118 furnaces for the smelting of iron ore, then in full blast in Scotland, and producing 796,640 tons of pig-iron, 102 were situated in the two western counties of Lanark and Ayr, and the produce of these amounted to 717,600 tons. At 79*s.* 8*d.* per ton, the gross value of this industry was 2,858,440*l.* Of this, 122,684 tons were shipped direct to foreign countries, and 294,194 tons were sent coastwise; while 22,865 were sent by railways, and 171,360 were converted into malleable iron, leaving 106,497 tons for foundry and other purposes of the district. The number of men employed in the iron mining in this district during 1854 was 5,585. In malleable iron almost nothing was done in the west of Scotland till 1839, and in 1842 the production did not exceed 35,000 tons. During 1854, however, the manufacture reached 122,400 tons. At an average of 10*l.* per ton, the gross amount of this industry was 1,224,000*l.* The number of men employed was about 4,000.

Polytechnic Institution.—The Monday attendance of the industrial classes here fully justifies the experiment made by the directors. Last week the visitors were so numerous that entertainments were going on simultaneously in both theatres. It is worth noting that on these evenings there is no diminution in the receipts from the full price attendants; and if one may judge from the satisfaction evinced by many members of the aristocracy present on a recent Monday evening, no small part of their gratification was derived from the evident enjoyment displayed by their less exalted fellow countrymen.

Ovens.—I have seen ovens of sheet-iron constructed upon the principles suggested by your correspondent "E." They are admirably adapted to cooking purposes, being in this respect greatly superior to those upon the old plan. The saving of fuel consequent upon their use is considerable, and their construction is simple. They are heated from the kitchen grate, through an opening in the side plate, a little above the bottom of the grate. A space of say 3 inches betwixt the brickwork and the oven is left on four sides, viz. the bottom, the side most distant from the fire, the back, and the top: round these the flame from the beforementioned opening passes; and thence by means of a flue the smoke is conducted into the chimney. A damper in this flue enables you to let on or shut off the heat at pleasure, while a piece of thin iron, an inch or so in breadth, girthing the oven, placed with the edge upon its sides, and worked backward and forward by an iron rod from the front, serves to remove the soot that in process of time will accumulate.—J. F.

Brushes for the Lacboracic Paint.—Again must I trespass to a small extent upon your time and space, in connection with the "*Lacboracic Paint.*" Such of your correspondents as may honour it with a trial will find, if they employ the ordinary brushes (bound with twine, and fastened by *glue*), that the latter will speedily fall to pieces, the *Lacboracic* being a water-paint. This awkward occurrence may be prevented by the following simple process:—Pour a quart of boiling water upon 1 oz. of powdered *nut-galls*, and, when cool, pour off the clear supernatant liquid: soak the brushes in the same for forty-eight hours; at the expiration of which time the *glue* they are fastened with will be entirely converted into *leather*, and, consequently, they are then quite unalterable by either oil or water paints, and stronger than they were before. I did not use brushes of the above description in my first experiments, or the above would have been thought of, and sent to you sooner. —W. L. S.

Scarcity of Labour in Wales.—Owing to the railway, dock, and other extensions going on in South Wales, labourers are realizing 8s. 6d. while blacksmiths range from 5s. to 6s. a day.

Electro-telegraphic Progress.—An attempt to lay down the submarine telegraph across the Gulf of St. Lawrence, seventy miles in length, to St. John's, Newfoundland, which would have reduced the interval for news between Liverpool and New York to six or seven days, has unfortunately proved unsuccessful. After forty miles of the cable had been run out, during a period of heavy weather, which had already occasioned many interruptions, the line parted, and had to be abandoned. The season being now over, the enterprise cannot be renewed till next year. It appears that, instead of a large steamer being employed, the cable was shipped on board a sailing barque, which was towed by a small steamer, and that the disaster is to be attributed to the difficulty of their keeping together in a rough sea. It is to be hoped this misadventure will not have the effect of checking farther progress in the same direction. ——Messrs. W. J. Macquorn Rankine, C.E. and Mr. John Thomson (of the East-Indian Railway), have patented a method of laying electrical conductors, for submarine telegraphic communication. The resistance of fluids is employed under this patent, the fluids being forced by pumps through adjustable valves to regulate the speed of the drums and pulleys by which the cable is dropped. The inventors calculate on thus saving the labour of twenty or thirty men, enabling *one man* to regulate the speed of the cable by opening and closing a valve, and rendering the whole operation, in great depths of water, incomparably safer, more certain, and more expeditious, as well as cheaper, than it is at present.—— The preparations for laying down the submarine telegraph cable between Sardinia and Africa have been progressing satisfactorily. Intelligence was lately received, according to *Galignani's Messenger*, from Mr. Brett, dated Cagliari, 22nd ult. on board the ship *Result*, 2,000 tons, with the submarine cable, 162 miles in length, on board, ready to start. Mr. Brett has determined that the cable shall be laid from Cape Spartivento (Sardinia) to Bona direct. The length of cable is said to allow largely for the sweep and variation of the vessel's course and the profile of the bottom of that part of the Mediterranean, as shown by the soundings previously taken.

Serpentine Stone.—Some who are interested in the *exploitation* of serpentine write to us as follows:—"In the able and useful papers on the Chemistry of Building Materials, by Dr. Wilson, which have recently appeared in your journal, allusion is made to the 'very beautiful rock now coming into use as a building material, called Serpentine,' and the author states that it is 'a soft stone, not very suitable for out-door exposure, but admirable for inside pillars.' As the subject is becoming every day of increasing interest to the building world, we trust you will allow us space in your columns to point out that the statement in question is not correct in reference to the Lizard Serpentine. You are probably aware that the whole, or the greater part, of the Lizard Promontory is composed of serpentine—those picturesque cliffs which have become an object of great attraction to tourists, having been placed by nature on the most exposed portion of our coast, where they have resisted for ages the broad sweep of the Atlantic. It is not, however, generally known that the stone of the district has been used for building purposes conjointly with the granite, also found in the neighbourhood, and that it is proved to resist the destroying hand of time in a far higher degree than its kindred rock. The parish churches of Grade and Landewednack, in the Lizard district, are built of granite and serpentine, in alternate courses, and are of considerable antiquity. The granite exhibits manifest symptoms of decay, while the serpentine is as sound, and the edges of each stone as sharp, as on the first day of erection."

Sanitary Progress at Swindon.—A correspondent, who has occasionally sent us communications on this subject, points attention to the completion of a pair of labourers' cottages for the lord of the manor, in which there has been manifested a lamentable want of sanitary considerations. Into the detail of these, however, it would be useless as impossible for us to go. It is painful to hear of such facts, but we fear they are but too prevalent in more places than Swindon. The House of Commons, of which the proprietor of the cottages referred to is said to be a member, has now been pretty fully impressed with the necessity of carrying out stringent laws for the prevention of the possibility of every such alleged infringement of the laws of sanitary science and of common sense; and it is to be hoped that ere long every member of that House will become, without exception, even in his extra-official capacity, an individual promoter, exponent, and upholder, of such laws, and neither a breaker nor a neglecter of them, as but too many of them still appear to be.

Lismore Castle Towers.—The foundation-stone of a new tower at Lismore Castle, an Irish seat of the Duke of Devonshire, was laid by the Lord-lieutenant of Ireland, on Tuesday in week before last. The tower is to be called the "Carlisle Tower," in honour of the noble layer of the foundation-stone. It is one of a series of new or restored towers with which Lismore Castle is being adorned. The foundation of the Carlisle Tower is 15 feet beneath the surface. From the ground line to the battlements it will be over 140 feet, whilst a turret will rise 30 feet from the battlements, making its entire height 170 feet; and it will thus look down upon and dominate every other part of the castle. The first of the series of towers built within the last two years, to replace those of times gone by, was what is called "The Bloody Tower," from some old legend connected with it. This tower, which has been for centuries an ivy-covered ruin, now forms one of the most prominent features in the various approaches to the castle, more particularly that from the north. It is built in the Machicolated style, with battlements and embrasures, and is surmounted with a light turret, which springs from the tower itself, by means of a corbel. The interior contains various apartments. Another tower, which also lay for centuries in ruins, has been rebuilt. It forms the south-eastern angle of the square, and is known as "King John's Tower." Like the other, its interior has been made available for modern usages. Beyond this, on the south side, is the gate or entrance-tower, over the gateway of which is a stone tablet bearing the arms and motto of the great Earl of Cork. This has also undergone various repairs, and is brought more in unison with the rest of the castle. The eastern wing, which was of a modern style of architecture, has just been rebuilt in the castellated style, having two bay windows. The round tower, forming the entrance to this wing, has just been raised and castellated. These works have been carried out under the inspection of Mr. John Browne.

Gas.—The half-yearly meeting of the Surrey Gas Consumers' Company was held on Thursday in last week, when a dividend of eight per cent. per annum, free of income-tax, was declared, leaving a surplus in hand of 749*l.* 1s. 9d.——The result of the inquiry which has been going on in Liverpool as to the charges made by the gas company, and the accuracy of the metres, it is said, has not been creditable to the company, as many of the metres are found to register against the consumers. The superintendent of St. John's market stated, that whilst the dry metre registered 354,000 feet, the wet metre indicated 483,000.——One of the most alarming gas explosions which has taken place since the memorable one in Albany-street, Regent's-park, occurred on Thursday night in last week, at the Torriano Tavern, Torriano-terrace, Kentish-town. The landlord went round to see that all was safe, and on entering one apartment with a lighted candle, an explosion took place, which shook not merely the house, but the foundations of every house in the neighbourhood, for a considerable distance. The entire north front of the building was blown out. The door of the wholesale department, as well as the corner door and windows, were blown completely across the street, and several windows in the neighbourhood were shattered by the concussion. The walls which surrounded the parlour on either side were nearly blown down, and the unfortunate landlord, Mr. Dance, was carried across the bar and against a mahogany compartment with such violence as to split it to pieces. Mr. Dance was found lying in front of the bar, in an insensible state, and dreadfully burned about the head, face, and body, but strange to say, no bones were broken. It is believed that the escape of gas originated from the upper part of the chandelier, which was upon the hydraulic principle. The house and stock are insured.

Surveyorship of Bridges.—At the Wakefield quarter sessions, Mr. Bernard Hartley, of Pontefract, was appointed to the office of surveyor of bridges, vacant by the death of his late father, Mr. Jesse Hartley. The salary is 400*l.* per annum.

Central School of Art.—We are informed that the two following names have been added to the staff of masters for the Central School of Science and Art, Marlborough House, viz.—Mr. H. Hagreen, late of the Charter House School, Goswell-road, to the class for "Architectural Drawing," in place of Professor Semper, who, in the early part of last session, accepted an engagement in Switzerland; and Mr. C. P. Slocombe, who some time since conducted the Finsbury District School, to the class for "Ornamental Design." It is to be hoped that this branch of the arts, which has so long had but a nominal existence in our head school, will acquire greater importance. Mr. O. Hudson has succeeded Mr. R. N. Wornum as lecturer on "Ornament."

The Synagogue, Great St. Helen's, Bishopsgate.—This edifice, built some years ago from the designs of Mr. John Davies, architect, has been recently decorated under his direction, at a cost of 3,000*l.* and now presents a very rich and elegant appearance. Some of the metal-work here is exceedingly well designed.

A Testimonial.—On Tuesday last a chased snuff-box was presented by the workmen of the new Houses of Parliament to Mr. Samuel Chilvers, as a mark of esteem for his conduct during the years he was employed as foreman on those works.

TENDERS

For a house at Penge. Mr. Kelday, architect. Quantities by Mr. Wells:—

Taylor and Copeland	£1,435	0	0
Fisher (accepted)	1,348	0	0

For the new market-hall and shed at Warrington. Mr. James Stevens, architect. Quantities supplied by the architect:—

FOR THE IRON-WORK ALONE.

Fox, Henderson, and Co.	£2,490	0	0
Cochrane and Co.	2,436	0	0
J. Heywood	2,365	0	0
Melling and Son	2,171	12	6
J. and J. Cliff	1,999	10	0
A. Handyside	1,908	0	0
Picksley and Sims	1,875	0	0
T. Perry and Sons	1,860	0	0
James Gibson and Co.	1,840	0	0
James Featherstone	1,749	0	0
Williamson and Roberts	1,725	0	0
Hemming and Co.	1,549	0	0
Wrightson	1,375	0	0

FOR THE WHOLE.

S. Denison	£8,750	0	0
Edward Bann	6,700	0	0
John Evans	6,600	0	0
Jos. Gibson and Co.	6,398	0	0
Walter Mabon	6,330	0	0
Clarke and Jones	6,264	0	0
Ligley and Shawcross	6,103	0	0
Brownhill and Co.	6,100	0	0
Mellor, Son, and Terras	6,069	0	0

Revised Estimates, the Council having decided not to expend more than 5,000*l.*

Clarke and Jones	£5,473	0	0
Mellor, Son, and Terras	5,173	0	0
Brownhill and Co.	5,140	0	0
Jos. Gibson and Co.	5,099	0	0
Ligley and Shawcross	5,060	0	0
Edward Bann (accepted)	5,000	0	0

For the erection of a new house, stable, coach-house, &c. for Mr. J. Gladding, at Havering-atte-Bower, near Romford, Essex. Mr. J. Saul, architect:—

Wilson	£1,640	0	0
E. Curtis	1,142	0	0
Hill	1,138	0	0
Morter	1,100	0	0
Hammond (accepted)	1,098	0	0

TO CORRESPONDENTS.

"Margate Pier" (we shall be glad to see the paper in question, but do not think it desirable to enter into the dispute between the contractor and the directors, *ex parte*).—"R. J. S."—"Mr. G."—"W. P."—"H. R."—"J. Y."—"J. T."—"J. B."—"R. R. B."—"T. J. F."—"An Improver."—"B. and C."—"W. R."—"H. C."—"C. H."—"J. R."—"W. M. F."—"R. S."—"J. S."—"An Old Architect."—"X. Y. Z." (designs for such quays were made by John Martin, and others, long ago).—"J. B." Lincolnshire (thanks).—"W. W."—"Messrs. F."—"W. R."—"H. M."—"D. E. F. G."—"S. J."—"J. J."—"W. P. G."—"C. H. W."—"T. R."—"J. S." (we do not know of any decision on the point. It was simply our own opinion we expressed).—"G. A. C."—"O. G. Q."—"H. W."—"Ely."—"C. R."—"W. C."—"Mr. H."—"T. P. M."—"N. E. S."—"E. B."—"F. O. W."—"W. H." (too late).—"J. T."—"G. E. S."—"An Architect."—"A Subscriber."—"W. Y."—"W. P."—"R. S. T."—"Dr. L."—"H. B. H."—"R. K." (next week).—"T. J."—"G. E. J." (in such a position, salt-water might be used. Fresh water would, nevertheless, be preferable).—"W. H." (yes: the Patent-office).

"*Books and Addresses.*"—We are forced to decline pointing out books or finding addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the Editor, and not to the Publisher.